

Flight, September 2, 1911.

FLIGHT

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AERIAL LETTER POST.—An undress "rehearsal" at Hendon under Post Office conditions. Handing in a "late fee" letter. The aerial post, which will be carried out under the auspices of the Grahame-White Co., starts, as referred to elsewhere, on September 9th.

EDITORIAL COMMENT.

Encouraging the Native Idea.

In one respect aviation may be said at the present moment to stand at the parting of the ways. Hitherto development has been of an International nature in that all encouragement, or practically all, has been directed towards securing all-round efficiency of flight irrespective of persons or countries. For example, the munificent prizes provided by the *Daily Mail* were open to all comers, and, as history records, were both taken out of the country by strangers. We do not grudge the winners their success, for the simple fact is that the object for which these prizes were given was attained, and we can ask no more than that. There is no further need for such contests as these two which made so much aerial history. In the future we want to proceed along somewhat different lines. What we may call the general conclusions have been reached, and the time has come for the encouragement of the more specific. In a word, such contests as are necessary for development—apart from those of purely spectacular value, with which we have no serious concern—must be confined to our own people. That this has been realised in France is made manifest by the action of Michelin et Cie. in their latest gift of prizes for the encouragement of flight in France, particulars of which were given in last week's issue of FLIGHT. The spirit of emulation must be fostered at any cost, but in order that it may become a healthy growth in any country there must be sufficient certain encouragement given to make it worth while for people to spend time and money in cultivating it. Like the "flying meeting" of unhappy memory, the big international contest has had its day. Both served a useful purpose in their time but they are out of date now. Flight as a science has emerged from the chrysalis stage; its general principles are thoroughly well understood; public interest has been stimulated to an extent which has firmly established it among the concrete things of the period; and from the doubtful amusement of the few it has become a firmly rooted industry. But we are not altogether out of the wood yet, and much remains to be done before we can take our place abreast of our foremost rival. The conclusion to be reached, therefore, is that we must bend all our energies for the future towards the encouragement of the native idea, not by any means neglecting the lessons to be learned from others, but doing all we know to work out our own salvation.

The First Aerial Post.

Next week is to see the inauguration of the first aerial postal service in England. Could anything be more significant of the progress that has been made towards the perfection of dynamic flight than the outstanding official recognition extended to the aeroplane by the Postmaster-General? True, the authorities have been careful to make it clear that they will accept no responsibility for postal matter sent by air, but that is simply in accordance with the dictates of common-sense, and would certainly have been stipulated had there been such a thing as conveyance of mails by motor car when the latter had reached the stage of development at which we now find the aeroplane. It is a far cry from the establishment of a twenty-miles' intermittent mail service by air to the supplanting by the aeroplane of all existing methods of mail carrying, and we are not of the super-sanguine temperament which would lead us into speculations anent the future which would better fit the pages of one of

Mr. H. G. Wells' novels than prophecies of sober fact. But nevertheless this departure of a matter-of-fact Government Department, carefully and cautiously as responsibility is avoided, has its auguries for the future. It is true that this experimental enterprise has the sacred cause of charity as its primary object, and that it will only be in operation for a very limited period. But it is a start. If it succeeds—and it will succeed—it will constitute another link between flight and the public. At first the latter will entrust its correspondence to the air out of simple curiosity. Then, possibly somewhat to its surprise, that correspondence will be delivered safely and to time. As a natural outcome, later will follow extension and yet more extension, which will cover the country with a network of aeroplane services—and who shall say where the end will be?

The Death Roll of the Air.

In a recent issue of the *Observer* Mr. C. C. Turner deals with this subject, and works out some interesting averages, showing how very much safer flying has become, even within the past few months. Taking the fatalities of 1910, the writer calculates that each death represented a mileage of about 3,500. During the year there were recorded 397 flights of over an hour in duration, and the death roll was 29. This year, between January 1st and July 31st, no fewer than 667 flights of over an hour's duration were placed on record, and the fatalities numbered 35. Thus the average has bettered itself to the extent that each death represents 4,900 miles of actual flight. But, as Mr. Turner is careful to point out, the assumption is distinctly unfair to the actual improvement which has taken place in the practice of flying, because, although it shows a diminishing mortality, it takes no account of the vast improvement in the quality of the flying, or of the fact that aviators now habitually fly in winds that a year ago would have kept them in their sheds.

Moreover, it must be remembered that whereas in the earlier days only the most fitted, physically and mentally, were amongst those who dared to soar above, nowadays flight has become so much a matter of course that numbers of very ordinary folk go to swell the ranks of aviators, and the margin of possibility of accident is thus largely increased. Therefore, the average is even better than it looks, for while in the figures of 1910 are included only those who ranked as experts of the first class, in those of the current year are to be numbered many who scarcely could be included in that category.

An analysis of the accidents of 1910 shows that the contributory causes of accident may be classified as follows: Faulty construction, mistakes of the aviator, atmospheric disturbances, accidents due to spectators. If we examine the record of this year's fatalities we shall find that the first contributory cause has almost entirely disappeared, and from first place it has fallen to second or even third. If we except engine failures from the category of faulty construction—and it is fair to do so—then the order would probably be: Mistakes of the pilot, atmospheric disturbances, and faulty construction. We can take heart from the analysis, which goes to indicate that we have practically succeeded in eliminating weaknesses of construction, while the experience being gained every day will teach us to deal with the varying atmospheric conditions to be encountered in the upper air, while as control is simplified the personal equation will continually lessen as a producer of accident.

A Study of Bird Flight

By Dr. E. H. Hankin, MA. DSc.
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FIG. 14 represents diagrammatically the structure of the wing tip, A-B is the axis of the wing, I to X are the large wing tip feathers, usually known as the primary quills. Of these I to IV are attached

indicated at E. The phalangeal quill mass is articulated at the point, H, to the point, F, of the metacarpal mass. That is to say, E is the carpal joint, and H and F represents the metacarpal joint.

If the wing is extended horizontally, movement at these two joints may take place in the horizontal plane by the action of various flexor and extensor muscles. In birds there is no muscle that can bend the wing tip downwards by direct action. As I shall show in a later chapter, in bats there is such a muscle, which can bend the wing downwards at the carpal joint, and is used in flapping flight at the end of each downstroke. In birds, any appearance of bending downwards at the carpal joint can only be due to indirect causes, such as pressure of air on the upper surface of the wing. Slight rotation round the axis of the wing can occur at the carpal and metacarpal joint, and is so produced by the muscles that I am about to describe.

Let us suppose that the diagram (Fig. 14) represents the two parts of the wing-tip of the left wing as seen from above. The arrangement is such that the inner feathers overlap the outer feathers. That is to say, for instance, the edge M of quill V overlaps the edge L of quill IV. In the case of the common vulture when making a dip movement of limited extent, a gap of about an inch may be seen to occur momentarily between the points M and L. Therefore the rotation of the point K downwards

does not immediately result in L being elevated. On the contrary, owing to the rotation, the whole of the phalangeal mass ceases to be pushed up by the air and therefore becomes depressed. If a small dip of this nature passes on into a full dip, then this gap closes up and there is an appearance of the hinder ends of the quills becoming elevated. My diary contains seven instances of observa-

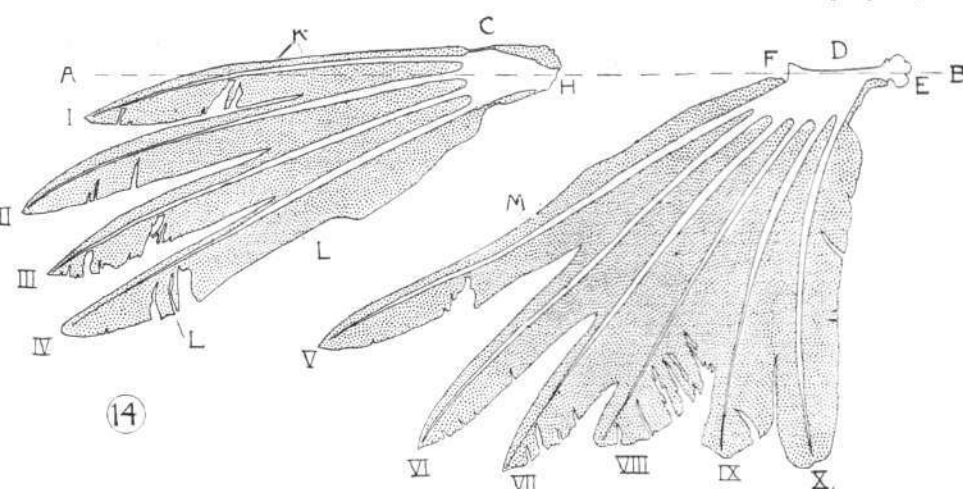


Fig. 14.—Structure of wing-tip of vulture. A-B, axis of wing. C K L, phalangeal quill mass, consisting of first four primary quills, I, II, III, IV, which form an almost solid mass with the phalangeal bone mass, C. The phalangeal quill mass is articulated at H to the point, F, of the metacarpal quill mass, M D. This latter consists of the fused metacarpal bones, D, to which are firmly attached the remaining primary quills, V, VI, VII, VIII, IX, and X. These quills may conveniently be termed metacarpal quills. The metacarpal quill mass is articulated at E, the carpal joint to the main part of the wing.

For the sake of clearness, the alula or bastard wing has been omitted.

to the phalangeal bones, C, forming therewith a practically solid mass. These first four quills may conveniently be described as the "phalangeal quills." The remaining primary quills (V to X) are similarly attached to the metacarpal bone, D. These quills may, therefore, be described as the "metacarpal quills." The point of attachment of the metacarpal quill mass to the rest of the wing is

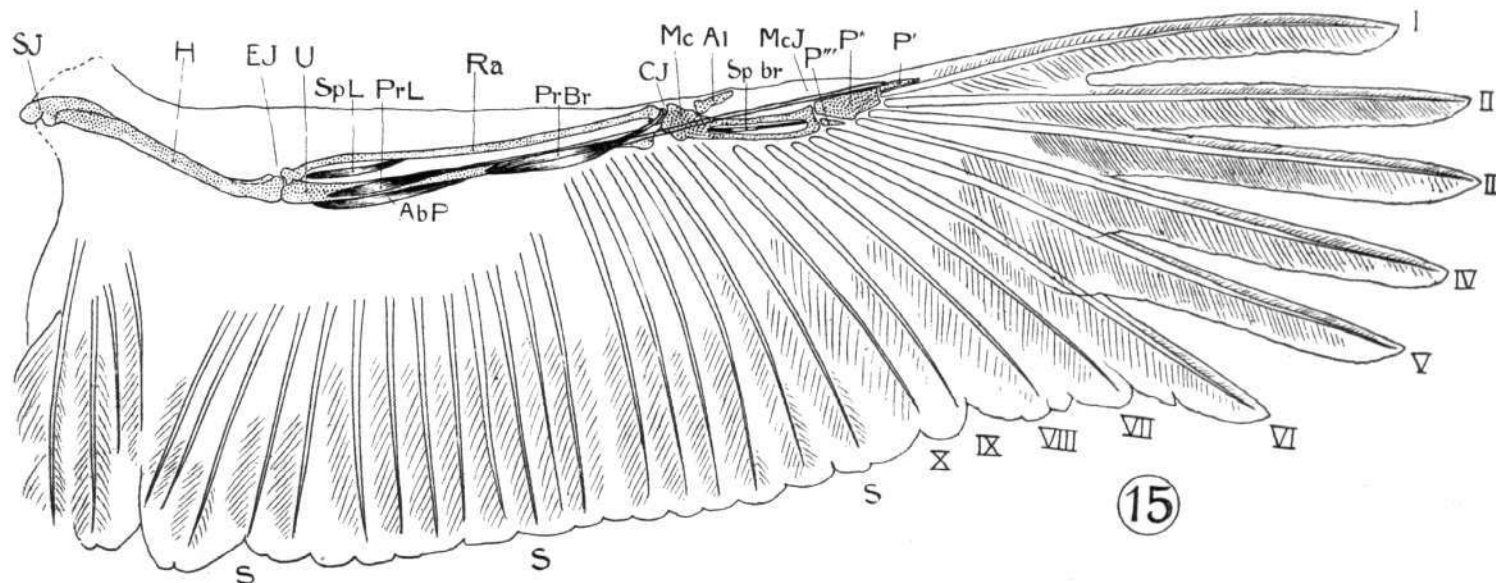


Fig. 15.—Dissection of left wing of Black Vulture (*Otogyps calvus*) seen from below, showing muscles concerned in rotation of wing-tip. SJ, shoulder joint; H, humerus; EJ, elbow joint; U, ulna; Ra, radius; CJ, carpal joint; Mc, metacarpal bone; Al, phalanx of first finger of alula; McJ, metacarpal joint; P', P'', phalanges of middle finger; P'', phalanx of third finger. I, II, III, IV, phalangeal quills; V, VI, VII, VIII, IX, X, metacarpal quills; S, S, secondary quills; SpL, supinator longus; SpBr, supinator brevis. The tendons of these two muscles are not shown. PrL, pronator longus; AbP, abductor pinnae; PrBr, pronator brevis. The tendons of the pronator longus and of the abductor pinnae are shown inserted into the phalanx P'.

tion of this "phalangeal quill gap." Since the date of the last entry I have seen it on many occasions. Once I have seen it in the case of a black vulture. I have observed it both in circling, ease-gliding and in the gliding periods of flap-gliding.

This dip movement of limited range, in which the phalangeal mass only is moved, I propose to term the "half-dip." During the



Fig. 16.—View from in front of phalangeal quills.

half-dip, owing to the rotation, air ceases to press on the under surface of the leathers. But rotation is not carried far enough for air to press on the upper surface of the quills. Hence, during the half-dip, the feathers being relieved from air pressure, whether from above or below, take on their natural curvature as shown in Fig. 16. A half-dip movement causes a steering effect in the same direction as a full dip but to a less extent. I have been able to see this steering effect on several occasions, but perhaps more often than not the effect is too small to be detected.

It may be suggested that during a dip the air acts as a drag, by pressing on the upper surface of the quills. This suggestion is an easy explanation of the steering effect. But the phenomenon of the half dip suggests that it is not sufficient. It is possible that facts to be described in later chapters may be considered to indicate that some more deep-seated action is involved.

The chief muscles concerned in rotating the wing tip are shown in Fig. 15. This may be supposed to be a diagrammatic view of the under side of the wing, in which various muscles not concerned with wing tip rotation have been removed for the sake of clearness. The following are the names that I propose for the muscles, with a short description:—

1. "Pronator phalangis." This muscle arises from near the base of the ulna. Its tendon is inserted on the base of the middle phalanx.

2. "Abductor pinnae." This muscle arises from a tendon that connects the elbow and carpal joints. It is inserted on the outer side of the phalanx. Pulling the tendon of this muscle has a slight effect in rotating the wing-tip but also tends to advance the first primary quills.

3. "Pronator metacarpi." This muscle arises from the under surface of the distal part of the ulna. Its tendon passes in a curved course over the carpal joint and is inserted on to the base of the metacarpal bone.

4. "Supinator longus." This muscle arises from the dorsal surface of the radius. Its tendon (not shown in the diagram) is inserted on the middle phalanx. A small branch of its tendon is inserted into the alula. The action of this muscle is to rotate the front edge of the wing-tip upwards, that is to say to return it to its original position after a dip movement.*

5. "Supinator brevis" is a short supinator muscle lying in the hollow of the metacarpal bone mass.†

A second kind of steering action also occurs. This is visible as a momentary depression of the whole wing. The result is that the bird turns towards the side of the wing that is depressed. I propose to bring forward evidence bearing on the question of the nature of the depression movement in Chapter XVIII.

Perhaps more often than not in the smaller soaring birds, and sometimes in larger birds, the dip is combined in one movement with depression of greater or less extent.

CHAPTER IX.—Diving. Rotation round Transverse Axis.

A tendency to dive head downwards, or else losing speed to glide backwards and descend tail foremost is or has been shown by various gliders and aeroplanes.

Soaring birds behave as if free of this tendency. But they can dive voluntarily when they wish to descend from a height at speed. A study of the method by which they check their speed when thus diving will be found to be of interest and to lead to the suggestion that they have a perfect method of preserving their longitudinal stability far superior to the use of elevators or horizontal rudders as seen on aeroplanes.

* The branch of the supinator longus tendon to the alula was missing in the only specimen of the sarus (*Grus antigone*) that I have dissected.

† Rotation of the wing-tip can be produced by pulling the tendons of these muscles. To see this rotation it is necessary to use a bird of large size. The movement is much more easily seen in a bird of ten foot span than in a bird of seven foot span. The bird should be freshly killed, and the structure of the wing should be disturbed as little as possible. Only a small portion of the basal part of the tendons should be dissected out.

The following extracts from my diary illustrate the general phenomena shown by birds when diving:—

February 14th, 1910.—At 3.36.—A light west wind and a few isolated cumulus clouds. At the time of commencing my observations only one vulture was visible. It was flex-gliding. Its height was measured with the telemetre and found to be 700 metres. While watching it, I noticed that its speed was greater than usual, and I at once made a measurement. It was found to be 40 metres per second (that is to say 89 miles an hour). It was then seen to be diving downwards, its track making an angle of perhaps 20° or 30° with the vertical. After I had made the measurement, its speed increased rapidly and greatly. At a height of about 100 metres above the earth it suddenly checked its dive, swerving somewhat from its course while so doing. The bird was then seen to be descending at moderate speed with its wings extended in the horizontal plane and slightly flexed. Its body and legs were hanging down below the level of the plane of the wings, and as it descended it was swaying to and fro like a parachute till it reached the earth. Within one or two minutes about 30 other vultures dived and landed in the same way. Then a vulture was seen which after its dive, and after it had commenced "parachuting," drew up its legs and flex-glided off, having apparently changed its mind. The vultures that had settled rose at 3.45 circling with flapping. Above 50 metres height they circled without flapping. They drifted to leeward and passed me at about 200 metres height. The "windward dip" was seen in several. Also half dips of the outside wing on the windward side of the circles. Above 200 metres height the vultures gained height rapidly.

Though I was able to follow several of the diving birds with the binocular it was quite impossible for me to see the method by which their speed when diving was so suddenly decreased. To be able to see how this is done it is necessary to be standing near the carrion so that the birds are seen approaching. Thus having an end on view of their track more can be observed than when they are diving at a speed of probably more than a hundred miles an hour across the field of view. I had seen the actual adjustment used for checking speed when diving some years ago. In view of my increased acquaintance with the subject it was desirable for me to see these movements again. A fortunate chance gave me this opportunity. The following description is from my diary:—

20th March, 1910.—At 5.0.—I arrived at Futteypur-Sikri just as the body of a leopard, that someone had shot and skinned,

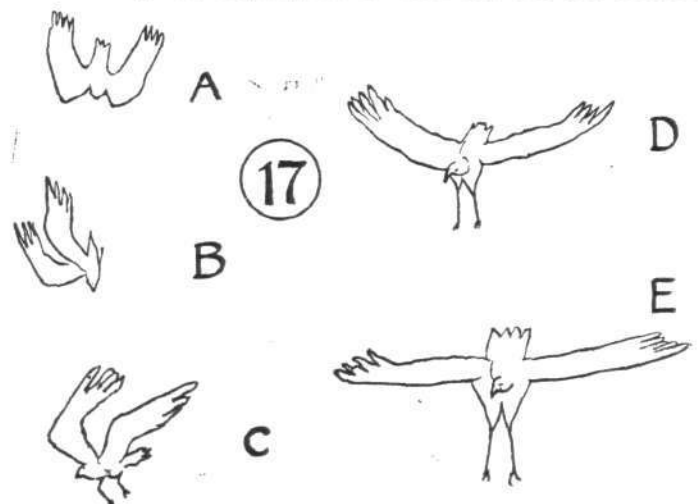


Fig. 17.—A vulture diving and checking speed. A, position assumed in diving; B, wings, still flexed, placed in dihedrally up position. Owing to the inertia acting through the centre of gravity and the resistance of the wing-tips forming a couple, the bird rotates to the position shown at C. In this position, instead of descending head first, it is descending legs first, with greatly increased resistance.

had been thrown over the edge of the hill a few yards away from the terrace of the hawk bungalow. Vultures were descending. For the most part they came from a distance, gliding downwards at a small angle of descent. One was watched nearly overhead diving downwards. When about 200 metres up it placed its wings, still flexed, in the dihedrally up position, so that the two wings made with one another a dihedral angle of between 90° and 100°. The bird also began to extend its legs; consequently it rotated in the air round its transverse axis, so that instead of descending head first it descended legs first. As, in consequence, the speed decreased, the dihedral angle of the wings diminished.

When near my level the wings were nearly flat (that is to say, extended horizontally, with no dihedral angle). The legs and also the body were hanging downwards below the level of the wings. All the birds as they descended glided to leeward of the dead leopard, so that when landing they were gliding up wind. The wind was west and very light, slightly moving the leaves of the trees. (How these birds knew the direction of the wind is a question more easily asked than answered.) The birds that arrived flex-gliding from a distance began to drop their legs and allow their bodies to hang down when about 50 metres up, and when from 50 to 100 metres to leeward of the leopard. In every vulture observed the "alula" was seen to be extended. In one or two instances the alula of one wing was seen to be suddenly rotated upwards. In spite of my best endeavour, it was impossible for me to observe whether this rotation affected both alulae at the same time. The observed movement of the alula must have been over 2 centimetres of its front edge. One vulture, when gliding down, suddenly slightly increased the flexing of both wings simultaneously. This produced an immediate drop of several feet, nearly vertically, obviously with the intention of getting to the ground without overshooting the mark. The drop was checked by renewed extension of the wings.

The important point in this description is the fact that the diving vulture placed its wings in the dihedrally up position to cause rotation round the transverse axis. On other occasions I have seen black vultures and cheels when playing together in the air make

short dives which were checked by placing the wings in the dihedrally up position.

Fig. 17 shows diagrammatically the changes in the disposition of the wings that result in checking the speed of diving. The explanation of the rotation is obvious. When the wings are placed dihedrally up, as at B, the inertia of the bird acts through the centre of gravity pulling the bird downwards or nearly downwards. The resistance of the wings must be acting in the opposite direction. The two forces do not act in the same straight line. Hence there must be a couple that rotates the bird to the position shown at C.

I will now consider the effect of changes in the dihedral angle. The change from the dihedrally-up to the dihedrally-down positions can often be seen in cheels, though in these birds it is usually not very great in extent. One of the first things I noticed on beginning my observations on cheels was that the dihedrally-up position is seen in circling especially on the up-wind side of the circle. I also saw that it was assumed at the end of a horizontal glide and that it immediately resulted in a gain of height. I learnt to associate the dihedrally-down position with loss of height and increase of speed. I once saw a cheel gaining height in several successive circles, with its wings, so far as I could see, in the dihedrally-up position all round the circle. Then, without gain of height, it described a circle with the wings either flat or slightly dihedrally down. Then it made a long glide in a straight line, descending gradually, with the wings dihedrally down and with clearly seen increase of speed.

(To be continued.)

THE AVERAGE WEATHER OF SEPTEMBER.

By T. F. MANNING.

In September the weather conditions begin, as a rule, to become somewhat adverse to the flying man.

This amazing summer, of course, has shown no regard for averages, and how it will influence the general character of the first autumn month we cannot guess. Normally there is less rain in September than in either July or August; but this year we may reasonably calculate on a reversal of the normal relationship, and perhaps for a greater than the average rainfall. Usually the first three weeks have considerably fewer rainy days than the corresponding period in August, but with the fourth week a decided increase sets in.

The fact of most importance to the airman is the very great increase which occurs in the number of fogs and mists. Both light fogs and dense fogs are three times as numerous in September as in August, and nearly seven times as numerous as in July. They differ from winter fogs, however, in the fact that they occur chiefly in the mornings and evenings. They increase steadily from the beginning to the end of the month, and while the odds are about 2 to 1 against a fog in the first week, the chances are 11 to 10 in favour of a fog during the last week. The following figures show how badly September compares with August in this respect:—

Fogs in a Hundred Years.

	August.	Sept.	August.	Sept.
1st week ...	23	55	4th week ...	41 110
2nd week ...	13	85	Whole month	122 374
3rd week ...	29	97		

Storms are almost as infrequent in the early part of September as during the summer months, but in the fourth week they rapidly increase. The fourth week over a series of years is twice as stormy as the first week; but, even so, the chances are 3 to 1 against a gale during this week in any year. In the whole month there are 11 gales in 10 years; this is an increase of 25 per cent. over August.

Hail is very rare in September—one fall in six years, and snow is scarcely ever seen in the south of England during this month, although one or two falls have been recorded.

Thunderstorms may still be expected, but they are only half as frequent as in August, and average just one for the whole month. But this phenomenon is so very uncertain that we might have several thunderstorms or none in any one September.

With this month the most favourable flying season comes to an end. The falling temperature brings fogs and mists, gales increase in number and violence, sunshine and daylight decline, and cloudy or entirely overcast skies become much more common.

The following figures show the relative average weather of August, September and October. They give the number of events occurring in each month during a period of ten years:—

	August.	Sept.	Oct.
Ten years' gales ...	9	11	16
" fogs ...	12	37	50
" dense fogs ...	2	6½	10
" thunderstorms ...	21	10	3½
" hail-storms ...	1½	1½	1½
" rain-days ...	129	123	150

Average rainfall (Greenwich) ...	2'34 in.	2'15 in.	2'58 in.
Mean temperature (Greenwich) ...	61'6	57'2	50'0
Hours of sunshine (Greenwich) ...	189	141	93
Degree of humidity (Greenwich)...	76'3	80'2	85'0

Table of Weather Phenomena in September.

The figures show the numbers of each event in one hundred years.

Day.	Gales.	Fogs.	Dense Fogs.	Snow.	Hail.	Thunder.	Mean Temp.	Rain Days.
1 ...	3	8	1	—	1	5	59'7	37
2 ...	2	6	1	—	—	3	59'7	49
3 ...	1	8	1	—	—	5	59'6	44
4 ...	1	9	1	—	—	3	59'4	37
5 ...	2	8	1	—	1	3	59'3	40
6 ...	3	11	1	—	2	8	59'1	51
7 ...	4	5	—	—	1	7	58'9	40
1st week ...	16	55	6	0	5	34	—	298
8 ...	2	12	2	—	—	5	58'7	40
9 ...	5	10	2	—	2	4	58'5	43
10 ...	4	12	2	—	—	3	58'3	43
11 ...	4	15	—	—	1	3	58'1	32
12 ...	6	9	2	—	—	3	58'0	32
13 ...	4	17	3	—	—	3	57'9	27
14 ...	2	10	—	—	—	3	57'8	34
2nd week ...	27	85	11	0	3	24	—	251
15 ...	3	16	2	—	2	4	57'7	32
16 ...	5	10	3	—	1	1	57'5	35
17 ...	1	19	4	—	—	4	57'3	41
18 ...	3	13	2	—	—	3	56'9	41
19 ...	4	15	1	—	1	1	56'5	37
20 ...	2	9	2	—	2	1	56'1	38
21 ...	2	15	3	—	1	5	55'7	54
3rd week ...	20	97	17	0	7	19	—	278
22 ...	2	14	3	—	—	3	55'4	40
23 ...	8	15	2	—	1	4	55'3	47
24 ...	4	12	2	1	—	4	55'1	51
25 ...	5	17	4	1	—	—	55'0	41
26 ...	5	14	3	—	—	2	54'9	38
27 ...	6	16	6	—	—	1	54'9	46
28 ...	4	22	4	—	1	3	54'8	48
4th week ...	34	110	24	2	2	17	—	311
29 ...	6	13	3	—	1	2	54'6	49
30 ...	9	14	5	—	—	4	54'4	48
	112	374	66	2	18	100	57'2	1,235

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

Committee Meeting.

A MEETING of the Committee was held on Tuesday, August 29th, 1911, when there were present:—Col. H. C. L. Holden, C.B., R.A., F.R.S., in the Chair, Mr. Griffith Brewer, Col. J. E. Capper, C.B., R.E., Prof. A. K. Huntington, Mr. F. K. McClean, and Harold E. Perrin, Secretary.

Election of Members.

The following new Members were elected:—

Life.—Lieut.-Col. Charles Oswald Smeaton, R.A.

Ordinary.—Major-General W. B. Barwell, Brigadier-General David Henderson, Baron Adam Roenne.

Aviators' Certificates.—The following aviators' certificates were granted:—

120. C. O. Dahlbeck (subject to sanction of Aero Club of Sweden), (Farman Biplane).
121. Lieut. L. V. S. Blacker (Bristol Biplane).
122. Mrs. Hilda B. Hewlett (Farman Biplane).
123. Walter C. England (Farman Biplane).
124. Herbert Spencer (Spencer Biplane).
125. Capt. D. Le Geyt Pitcher (Bristol Biplane).
126. Capt. C. G. Hoare (Bristol Biplane).
127. Lieut. R. H. C. Hall, R.N. (Bristol Biplane).

British Records.

The Committee accepted the following British Records:—

Duration with passenger.—Lieut. E. L. Gerrard, R.M.L.I., at Eastchurch on August 16th, 1911, on a Short Biplane, accompanied by Lieut. Wildman-Lushington, R.M.A., 4 hrs. 13 mins. This constitutes a World's Record for duration with passenger, and application has been made to the Federation Aeronautique Internationale for its acceptance.

Duration.—Lieut. C. R. Samson, R.N., at Eastchurch, on August 19th, 1911, on a Short Biplane, 4h. 58m. 30s.

Federation Aeronautique Internationale Conference.

Aviators' Certificates.—The Committee are now considering the advisability of raising the standard of efficiency to be attained by candidates for aviators' certificates, and will be glad to receive any suggestions on the subject. The Royal Aero Club will raise the

question at the next meeting of the Federation Aeronautique Internationale, which takes place at Rome in October next.

The Royal Aero Club will also bring forward the protest of C. Grahame-White against the award in connection with the Statue of Liberty Prize.

General Committee.—A meeting of the General Committee of the Royal Aero Club, which includes representatives of the associated clubs, will be held at 166, Piccadilly, London, W., on Tuesday, September 26th, 1911, at 3 o'clock, at which the questions to be brought up at the conference of the Federation Aeronautique Internationale, to be held at Rome in October next, will be considered and delegates appointed.

The following clubs associated with the Royal Aero Club will be represented:—Scottish Aeronautical Society, Aero Club of Ireland, Bristol and West of England Aero Club, East Riding Aero Club, Manchester Aero Club, Northumberland and Durham Aero Club, and Yorkshire Aero Club.

Eastchurch Flying Ground.

The telephone has now been fixed at the Club's flying grounds at Eastchurch, and the number is "9 Minster-on-Sea."

Late Hon. C. S. Rolls and Cecil Grace.

Several residents at Eastchurch have expressed the wish to place a stained glass window in the Church at Eastchurch, in memory of the late Hon. C. S. Rolls and Cecil Grace, both of whom made their first experiments in flying in the district.

The fund collected amounts to £22 towards an estimated cost of £60. Members wishing to contribute are requested to communicate with the Secretary of the Royal Aero Club.

British Empire Michelin Cup (No 1).

Intending competitors are reminded that the competition for this year closes on October 31st. The rules can be obtained from the Royal Aero Club.

British Empire Michelin Cup (No 2).

Intending competitors are reminded that the competition for this year closes on October 15th. The rules can be obtained from the Royal Aero Club.

HAROLD E. PERRIN,
Secretary.

166, Piccadilly.

PROGRESS OF FLIGHT ABOUT THE COUNTRY.

NOTE.—Addresses, temporary or permanent, follow in each case the names of the clubs, where communications of our readers can be addressed direct to the Secretary. We would ask Club Secretaries in future to see that the notes regarding their Clubs reach the Editor of *FLIGHT*, 44, St. Martin's Lane, London, W.C., by first post Tuesday at latest.

Arundel House School Ae.C. (15, ARLINGTON ROAD, SURBITON).

ON Saturday, the 26th ult., at the Hook Aerodrome, preliminary trials were made of the Mann monoplane No. 51, and a flight of over a quarter of a mile was accomplished. This machine is of quite original design and is the first Mann monoplane not fitted with a forward elevator. Durations so far have not exceeded 80 seconds, but it is hoped to improve considerably on this in the near future.

Liverpool Model Aero Club (39, BROOK ROAD, BOOTLE).

ALL work has been suspended up to the present, owing to the labour trouble. There will be flying competitions on Saturday, 2nd inst., and the following Saturdays, for Mr. Harrison's prize, which is now open for September. The club meets 1st and 3rd Fridays in each month; committee meetings, 2nd and 4th Fridays. Will members please note, and attend in force. Flying competitions on fine days commence at 3 p.m., but when windy will be postponed until 5 o'clock. Donations to the club library will be gratefully acknowledged.

Parkside Aero Club (2, EDEROKE ROAD, PADDINGTON).

ON September 9th at Parkside, Harrow Road, a rising off ground under own power combined with duration competition will be held. Entries received up to Friday, September 8th, entrance fee 2s. Prizes include a cup and medal.

Scottish Ae.S. Model Aero Club.

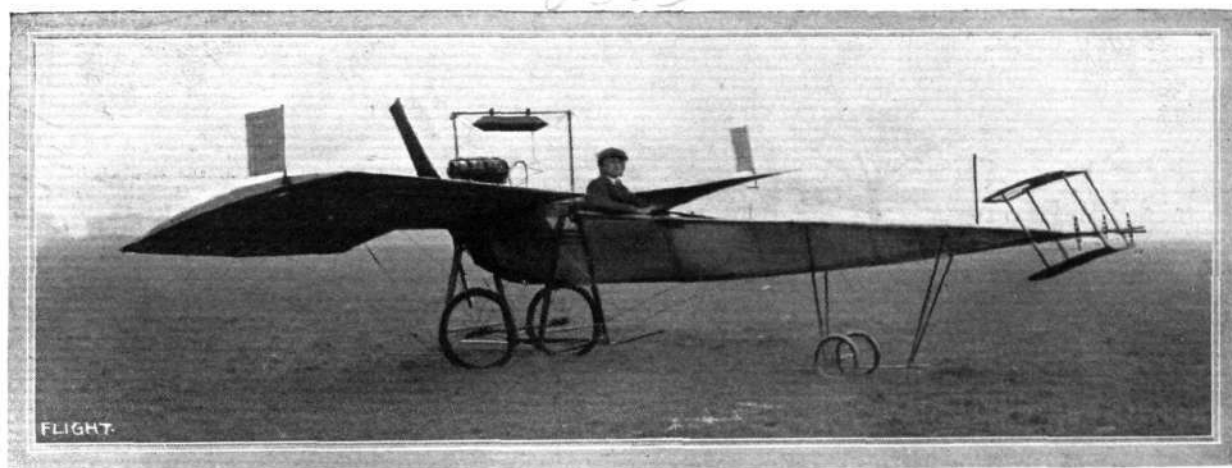
THE general meeting of the above club will be held in the Engineers' Institute, Elmbank Crescent, on Thursday, Sept. 7th, at 8 p.m. The committee earnestly request a full attendance of members, as they have some interesting and important proposals to lay before them.

Members are now being enrolled for the ensuing year, and all communications should be addressed to the secretary.

Sheffield Model Aero Club (35, PENRHYN ROAD).

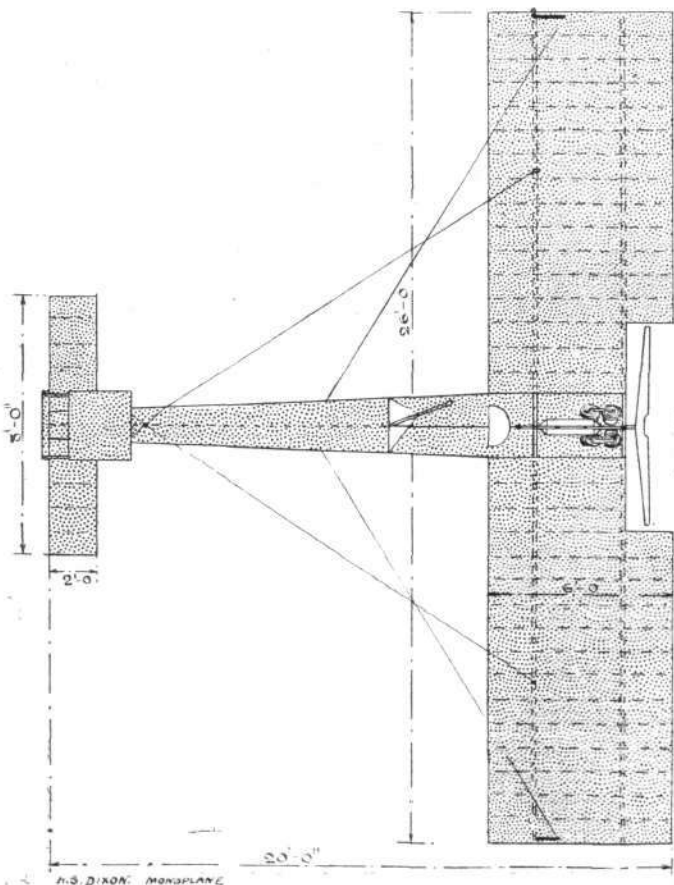
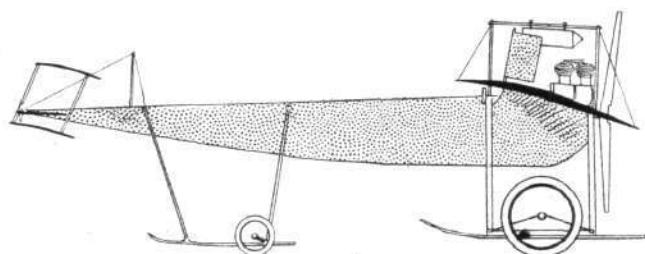
A GENERAL meeting of the above club was held on August 23rd, when it was decided to hold a series of monthly competitions, and also to offer a special prize to be competed for by those members who have not already won a prize. The subscription has been reduced with a view to increasing the membership of the club. Another proposal is to give certificates for the best constructed machines and for new ideas. Mr. T. Pashley, 55, Tuxford Road, Wadsley Bridge, Sheffield, was appointed assistant secretary. The chair was occupied by Mr. M. D. Manton, and Mr. E. E. Noble, of the Birmingham Aero Club, gave some very interesting ideas on propeller pitches, &c., and presented the members with some leaflets on the same. The club would be glad to receive donations towards prizes, &c., and any books on aeronautics.

THE DIXON MONOPLANE.

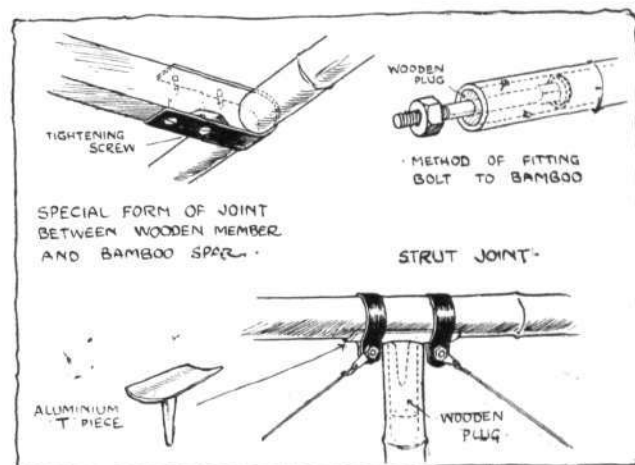


Side view of the Dixon monoplane.

READERS of FLIGHT will doubtless remember reading of experiments that were carried out by Mr. H. S. Dixon at the Acton Aerodrome some time ago. They resulted in rather an unfavourable manner owing to the premature disablement of the machine as the result of one of those severe contacts with *terra firma* that are so frequent during the early stages of learning to fly. The machine itself was of a distinctly uncommon design, and the accompanying



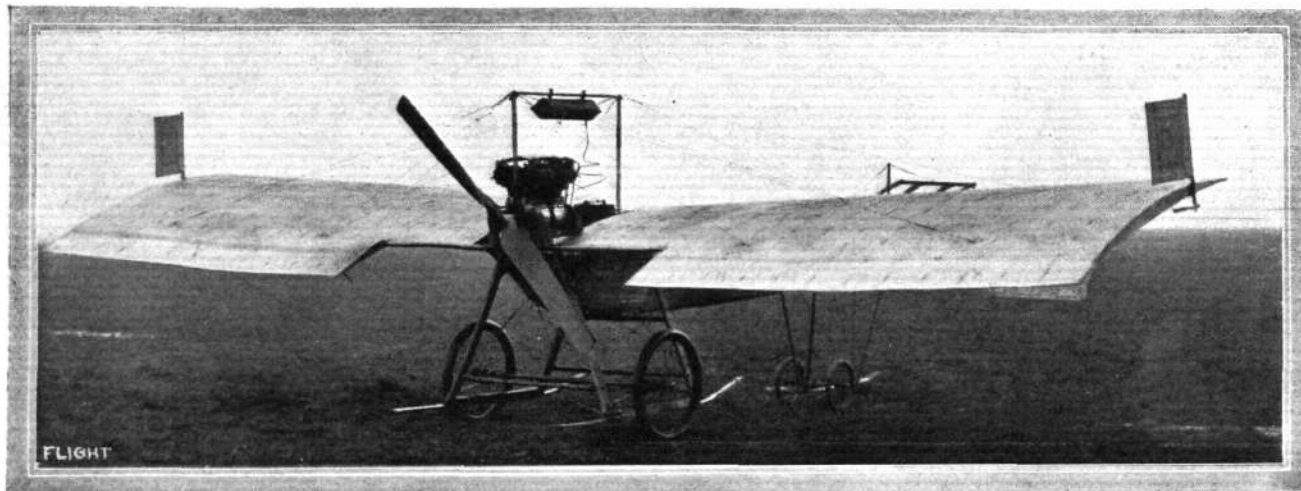
Elevation and plan of the Dixon monoplane.



Sketch showing some details of construction in the Dixon monoplane.



View illustrating the undercarriage of the Dixon monoplane.



Rear view of the Dixon monoplane.

illustration of it will probably be of interest to a large number of readers who make a study of these different systems of aeroplane construction.

The Nipper, as Mr. Dixon calls his first attempt, is a monoplane of the tail-first type, and is also characterised by its boat-shaped body. The leading plane consists of a tiny biplane, each member being about 2 ft. 6 ins. span and the same in chord, and, as the photographs show, the planes of this member have a considerable angle of incidence. Extending out from the gap of this leading plane are the two halves of a monoplane elevator, which is controlled by a universally pivoted lever in front of the pilot's seat. The sideways movement of this same lever is used to operate the rudder planes that will be noticed mounted vertically above the extremities

of the main wing. These rudders were intended to be used as brakes, and lateral equilibrium was maintained by steering thereby into the eye of the wind. Most of the framework is made of bamboo and the wings have aluminium leading and trailing edges. The pilot's seat, as will be observed from the illustrations, is situated practically in line with the leading edge, while the propeller, which is of 6 ft. 8 ins. diameter, works in a recess in the trailing edge. The engine, a 25-h.p. V type air-cooled Advance, is mounted just in front of the rear main-spar. A simple A type under-carriage, fitted with wheels and skids, is mounted under the main wings to support the bulk of the weight when the machine is on the ground, but a lighter carriage, also fitted with wheels and skid, is placed further forward to take the weight of the leading portion.

THE CETONIA (AUDAX) 1-H.P. CO₂ ENGINE.

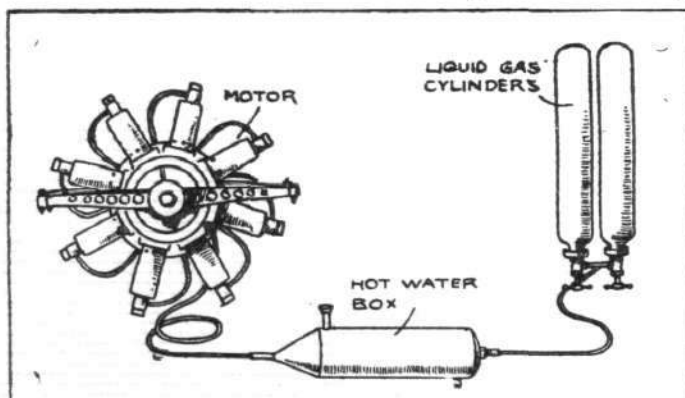
EARLY pioneers in the science of flight who sought to unravel some of its problems by the use of models, were much obstructed by the difficulty of obtaining sufficiently light motive power for their purpose. The story of Langley's experiments, for example, verges on the pathetic in its record of delay caused by the building of innumerable small engines, and not one of those who worked in this field found other than a great stumbling block in this matter. Almost all, too, tried to use a carbonic acid gas motor, for it seems, at any rate at first sight, that an engine of this description should afford the greatest opportunities of combining lightness with power.

Of late, the use of scientific models in the way that they were employed by the pioneers of whom we speak has been less in evidence, but we do not doubt but that it will come to the fore again, more particularly if these difficulties of the past are removed. It is particularly interesting, for instance, to observe that a French firm, Aero-Hall, 59, Boulevard Victor, Paris, has placed on the market a small carbonic acid gas engine, which they rate at 1-h.p. It is of the 8-cyl. radial type, and can be supplied either as a rotary or as a fixed motor, according to choice. The bore is 19 mm. and the stroke 28 mm. The weight of the engine is 790 grammes, and the overall diameter 185 mm. The cylinders, which are made of steel, are set radially about the crank-chamber at an angle of 45°, and the crank-shaft is mounted on ball-bearings. The connecting-

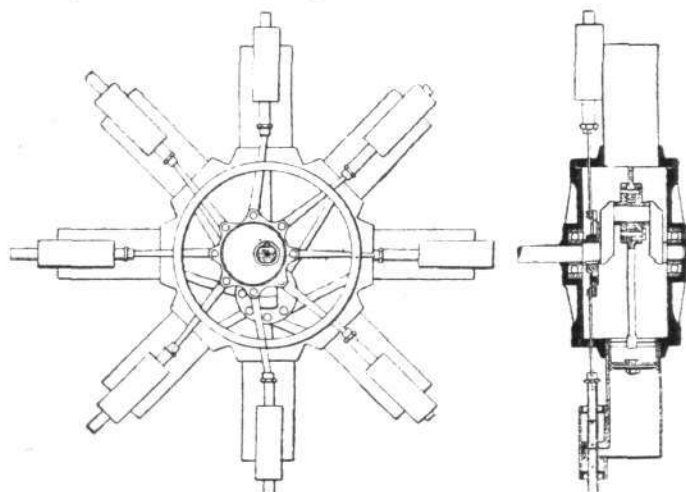
rods are hinged to the big-end of the master connecting-rod in the usual way. On the crank-shaft is an eccentric motion operating the inlet-valves, which are of the piston type.

The gas is led to the valve-chambers through radial pipes communicating with a central distributing-box. The gas itself is carried in liquid form in a small steel cylinder containing about 1 kilog. In order to avoid the creation of snow due to the intense cold accompanying the expansion of the liquid into a gas, the fluid is passed through a coil immersed in hot water contained in a cylinder provided for that purpose, and forming part of the complete equipment. The carbonic acid gas cylinders are intended to be recharged from the larger cylinders used in commerce, and generally available at any soda-water factory or brewery. The Cetonia motor has been officially tested at the Conservatoire des Arts et Metiers, where it gave 1'03-h.p. at 1,710 r.p.m. for one minute. Among its practical performances is a flight of 92 secs. duration, covering a distance of 1,178 metres with a model biplane measuring 2'5 metres span, 3 metres in length, and weighing 17'5 kilogs.

The Cetonia engine is the "Audax" motor, of which our correspondent, Mr. L'Estrange, wrote some while ago in FLIGHT.



The Cetonia CO₂ engine, with liquid gas cylinders and hot water box to prevent the formation of snow during gasification.



The Cetonia CO₂ engine. Sectional drawings showing the internal construction.

"DAILY MAIL" CIRCUIT OF GREAT BRITAIN.

Official times of those completing more than one Section.

Controls.	"Beaumont" (Blériot).			Vedrine (Morane).			Valentine (Deperdussin)			Cody (Cody).			Hamel (Blériot).		
	Date.	Resting Time.	Nett Flying Time.	Date.	Resting Time.	Nett Flying Time.	Date.	Resting Time.	Nett Flying Time.	Date.	Resting Time.	Nett Flying Time.	Date.	Resting Time.	Nett Flying Time.
Section 1.															
Brooklands-Hendon ..	22.7	—	0 20 4	22.7	—	0 19 48	22.7	—	0 22 41	22.7	—	0 25 18	22.7	—	0 21 45
Section 2.															
Hendon-Harrogate*	24.7	0 39 15	3 7 54	24.7	0 35 56	3 3 4	24.7	1 8 49	3 39 28	24.7	0 40 0	4 56 49	24.7	5 24 20	7 40 43
Harrogate-Newcastle*	24.7	0 29 10	1 8 50	24.7	0 24 38	1 8 22	24.7	4 2 36	1 22 24	25.7	19 8 41	26 9 18	24.7	9 8 52	2 32 8
Newcastle-Edinburgh*	24.7	10 51 35	1 53 38	24.7	10 59 26	1 47 35	24.7	6 48 45	2 2 27	28.7	44 40 42	4 27 20	25.7	—	3 8 56
Total ...	—	12 0 0	6 30 25	—	12 0 0	6 18 49	—	12 0 0	7 4 19	—	64 29 23	35 33 27	—	14 33 12	13 21 47
Section 3.															
Edinburgh*-Stirling ...	25.7	4 59 47	0 46 32	25.7	5 25 59	0 39 36	25.7	8 32 48	0 38 48	28.7	11 21 40	0 40 51	26.7	7 42 4	0 34 9
Stirling*-Glasgow ...	25.7	3 28 28	0 45 32	25.7	3 25 24	1 34 14	25.7	0 56 12	11 1 5	29.7	9 59 9	0 40 51	26.7	0 49 51	6 40 0
Glasgow*-Carlisle ...	25.7	0 52 57	2 13 30	25.7	0 55 46	1 57 4	26.7	15 38 55	4 17 40	31.7	45 17 9	15 16 13	—	1 2 0	—
Carlisle*-Manchester	25.7	0 54 30	4 36 55	25.7	0 47 56	4 35 49	28.7	38 52 20	37 43 59	1.8	9 10 47	25 6 40	—	Retired	—
Manchester*-Bristol ...	25.7	0 54 23	2 55 7	25.7	0 49 3	4 1 33	31.7	32 42	1 23 55	59	2.8	1 18 20	4 42 0	—	—
(Rest at Bristol)	—	0 49 55	—	—	0 35 52	—	—	—	—	—	—	—	—	—	—
Total ...	—	12 0 0	11 17 7	—	12 0 0	12 48 16	—	96 42 16	77 37 31	—	77 7 5	46 26 35	—	—	—
Section 4.															
Bristol*-Exeter ...	26.7	7 22 40	1 21 28	26.7	6 4 43	1 17 45	2.8	24 4 31	2 50 51	2.8	0 23 0	41 11 25	—	—	—
Exeter*-Salisbury ...	26.7	0 54 0	1 26 55	26.7	0 38 0	1 22 29	3.8	23 4 0	3 31 29	4.8	1 23 35	2 55 4	—	—	—
Salisbury*-Brighton ...	26.7	1 14 37	1 12 32	26.7	0 32 46	1 14 1	3.8	7 20 55	1 8 2	5.8	18 26 56	2 15 3	—	—	—
(Rest at Brighton)	—	2 28 43	—	—	4 44 31	—	—	—	—	—	—	—	—	—	—
Total ...	—	12 0 0	4 0 55	—	12 0 0	3 54 15	—	54 29 26	7 30 22	—	20 13 31	46 21 32	—	—	—
Section 5.															
Brighton*-Brooklands	26.7	—	0 39 51	26.7	—	0 36 34	4.8	13 57	3 9 25	15	5.8	2 9 57	0 29 0	—	—

* Asterisk indicates where rest time was spent.

The above table is interesting as a record of the performances of the four competitors who completed the full course in the *Daily Mail* circuit, and also of Hamel who got half-way round the course. It shows the time taken for each stage from point to point, and also the resting time as well as the official controls at which this resting time was spent. The flying time for the first section from Brooklands to Hendon, it will be noticed, is included in the

total flying time given for Section 2. Of the other competitors, Astley (Birdling), Pizey (Bristol), Montalent (Breguet), and Lieut. Reynolds (Howard Wright), retired at Harrogate. Blanchet (Breguet), Lieut. Cammell (Blériot), Pixton (Bristol), Hucks (Blackburn), Weymann (Nieuport), and Lieut. Bier (Etrich) gave up on the way from Hendon to Harrogate, and Compton Paterson (Grahame-White) and Audemars (Blériot) retired at Hendon.

**"BRISTOL" FLYING SCHOOLS.**

BRITISH aviation progress is well exemplified by the following brief summary of work done, from July 21st till August 23rd, at the "Bristol" Flying Schools. The following aviator's certificates have been obtained:—

Name.	School.	Date of Joining.	Date of Passing.	Time occupied.
Capt. H. R. M. Brooke Popham (Oxford and Bucks L.I.)	Brooklands	7 June	21 July	6 2
H. de Grey Warter (late 4th D.G.)	"	22 May	21 July	8 4
W. O. Watt ...	Salisbury P.	6 July	27 July	3 0
Lieut. W. Lawrence (7th Batt. Essex Regt.)	"	12 June	29 July	6 5
Lt.-Col. C. O. Smeaton (R.G.A.)	"	7 April	2 Aug.	7 0*
Brig.-Gen. David Henderson...	Brooklands	9 Aug.	16 Aug.	1 0
Lt. L. V. Blacker (Indian Army)	Salisbury P.	7 July	17 Aug.	5 6
Capt. C. Hoare (Indian Army)	"	26 July	23 Aug.	4 0
Capt. Pitcher ...	"	26 July	23 Aug.	4 0

* This officer was away from the school for about nine weeks between the dates mentioned.

Total certificates for the month nine, average time occupied five weeks.

It should be remarked that in some cases the certificates could have been taken sooner but were intentionally delayed.

The following is a list of the pupils at present under instruction:—

Messrs. O. S. Mellersh.	Lt. A. Wyness Stewart, R.F.A.
" J. Brereton.	Lt. H. A. Williamson, R.N.
" G. H. Slater.	Lt. J. G. Bower, R.N.
" E. Pitman.	Lt. R. J. Watts, 5th Batt. Worcester R.
" L. E. Petavel.	Lt. C. L. N. Newall, Indian Army.
" W. E. Gibson.	Lt. R. H. Clarke Hall, R.N.
" S. P. Cockerell.	Cadet N. F. Wheeler.
" R. Smith Barry.	Mr. Z. Y. Lee, Chinese Govt. pupil.

The fine weather during the past month has rendered flying on the majority of mornings and evenings possible, resulting in excellent progress having been made. The number of certificates obtained as above (nine) and the average time occupied (five weeks) affords satisfactory proof of what can now be accomplished under favourable climatic conditions, by good management and methodical training in a well-equipped school.

There have been only two smashes during the month, one each at Salisbury and Brooklands, involving a probable total cost of £115 for repairs. This item, as nearly thirty pupils have been using the machines, is in marked contrast to earlier days, when bad smashes were frequent, and minor breakages almost incessant.

It is interesting to note that seven of the nine certificates recently obtained by "Bristol" pupils were gained by officers of the Navy or Army, amongst whom Brigadier-General David Henderson (Chief Staff Officer to Sir John French), and whose "diary" of tuition we gave last week, stands out prominently as the first officer of such high rank to take up aviation practically. His passing for the *brevet* in one week is quite a remarkable performance, for which Mr. C. H. Pixton, his instructor, deserves his share of praise and congratulation. Of the pupils now undergoing tuition, it will be noticed that seven are representatives of the Services, eight are civilians, and one has been specially sent by the Chinese Government.

FROM THE BRITISH FLYING GROUNDS.

Brooklands Aerodrome.

COMMENCING with Wednesday last some interesting flying was witnessed. Lieut. Hall, R.N., a clever pupil of the Bristol Co., took out the school biplane for a fine spin of 30 minutes, practising turns. After a second flight he unfortunately "pancaked," which temporarily put the machine out of action.

The "Dragon Fly," after flying so well yesterday with Messrs. Hamel and Morison, was again out for trial, this time for circuit flying with Mr. Morison steering. Starting off and rising steadily, one could but remark how gracefully the machine flew, everyone wanting to congratulate Messrs. Martin and Handasyde, but, to the consternation of the onlooker, Mr. Morison, in taking a turn to avoid flying over the sewage farm, made a terrific swoop to earth, the machine lost way, and a gust of wind completed the disaster, turning the machine round as it fell. Mr. Morison had a marvellous escape. Of the machine, the chassis, propeller and all the forepart of the fuselage were badly damaged, the engine dislodged, tanks battered, and the rows of radiating tubes cut to pieces. The wings, except for one tip, escaped, as also the tail. Undeterred by this, Mr. Petre took out the Hanriot monoplane, and making a clean upward sweep, was soon circling round over the sheds in fine style. Later, Mr. Herbert Spencer gave an interesting flight on his biplane with a passenger, banking at the turns and flying in vigorous style.

The strong gusty wind on Thursday did not keep Lieut. Snowden-Smith from venturing on his Blondeau-Farman, and he had a rough time. It is seldom one sees a machine wobble under the pilotage of this clever aviator.

The Avro school has been busy, Raynham and Noel flying nearly every day, and teaching their pupils, Young and Hunter. Both are in the straight flight stage, and should shortly be making circuits. An Avro biplane is expected in the next few days. It is to be exactly the same as the one on which Pixton made his name as a cross-country flyer. These machines are excellent flyers, and the appearance of the new biplane will, we expect, be the signal for a batch of new pupils.

In the hands of Ronald Kemp and Petrie, the Flanders monoplane is making steady progress towards reliability, a "Beney" propeller having been fitted this morning with satisfactory results, the machine going strong. Kemp has flown many circuits, and is very pleased with the behaviour of the machine, which is fast, easy to control, excellently constructed, and has a great deal of natural stability. It takes a passenger with the greatest of ease, and, so Kemp informs us, will in all probability take two. Fitted with a

60-h.p. Green, which needs no recommendation, this monoplane should meet the demand for a good machine at a reasonable figure. It will, we expect, be entered for the British Michelin—we hope to see it among the foremost.

From Thursday to Monday is rather a long cry, but that is the time we have been held up by the wind. This morning Mrs. Hewlett, the plucky lady aviator, was taking round the Farman biplane in fine style, Mr. Blondeau following with passenger pupils.

In the Deperdussin School Mr. Sanderson, one of the pupils, was out doing straight flights on the school monoplane, landing and doing "grasshopper" jumps across the ground, when, finding the machine making straight for a ditch and not having room to pull up, he jumped out and tried to jerk the tail round, but its speed caused it to slip through his fingers, which were cut rather badly on a wire. Luckily the machine, although it persisted in going into the ditch, only damaged a skid.

Brooklands shows signs of getting ready for a busy season, and new firms are coming and old firms extending their premises, as Messrs. Deperdussin are opening an additional hangar to take in new machines, one a two-seater; these will be in charge of Lieut. Porte and Mr. Gordon Bell. Messrs. Vickers, with Mr. E. V. Fisher in charge, have taken several of the new hangars. Mr. Barber, of Valkyrie fame, will also occupy two others. When these, as they shortly will be, are in full swing, Brooklands will be one of the finest aerodromes in the world for seeing the newest and most varied types of aeroplanes. Mr. C. Ronald Kemp is joining Messrs. Handley Page, and Brooklands habitués will wish him success.

London Aerodrome, Collindale Avenue, Hendon.

Grahame-White School.—There was no flying to record up to Saturday last, when, as a sort of preliminary canter for the first aerial post, which takes place on September 9th, Mr. Driver flew to Windsor, with Capt. Vandeweyer as passenger. Owing to the wind turning very gusty, Mr. Driver was prevented from returning the same day, so had to remain with his machine until Monday morning, when an excellent flight was made back to the aerodrome.

Later on Saturday Greswell also attempted the flight, but whilst winging his way over West Drayton the weather became very rough, which unfortunately prevented him from proceeding further, and he at once returned to the aerodrome. There was no flying on Sunday, and on Monday the weather was very unsettled, but did not prevent Hubert from making a flight of about 20 minutes' duration at a height of 400 ft. He then had to descend owing to the rain.

Later in the afternoon Driver took up the Farman, with Mrs. Stocks as passenger, for a flight of about a quarter of an hour, Mrs. Stocks taking the control lever for most of the time. Driver then mounted the machine again and carried with him as passenger Lieut. Stopford for a flight of a similar duration. Rain then again set in, making further flying impossible.

Valkyrie School.—On Wednesday last week the school pilot made a short flight on the school machine, and then gave up the controls to Ridley-Prentice, who carried out several straight flights. Later, Mr. Copland Perry mounted the machine, and accomplished four circuits in good style.

Mr. Barber then brought out the Valkyrie racer, fitted with the new propeller patented by the Aeronautical Syndicate, Ltd., and put up some excellent flights of an exhibition character, descending presently in order to give passenger flights to Miss Meeze and Mr. Heron. Later, Mr. Ridley-Prentice was out again on the school machine, making very good progress for over half an hour. His flights were made over the whole length of the aerodrome, ascending to 40 and 50 ft., in order to perfect his landings before attempting bigger flights. He has demonstrated how quickly a pupil can attain proficiency by closely following instructions.

The machine was ready at 5 a.m. on Thursday, but fog was responsible for a lengthy delay. Towards 8 a.m. it cleared and permitted Mr. Copland Perry to get some good practice at an altitude of 200 ft. In the afternoon of Monday last Mr. Ridley-Prentice, after putting in some good practice, showing steady improvement, handed over the machine to Captain Loraine, who had his first lesson. After five minutes' instruction in the manipulation of the controls, Captain Loraine



Mr. E. V. Beauchamp Fisher, one of our most skilled aviators, in the pilot's seat of his Hanriot monoplane with which he has been doing so much fine flying at Brooklands. Mr. Fisher has now joined Messrs. Vickers, Ltd.

"rolled" across the aerodrome, and on his return passage "took to the air," flying with remarkable steadiness. He made several more straight flights before rain fell, terminating proceedings for the day. It is worthy of note that Captain Loraine had previously had only one short passenger flight, and to have flown at the first attempt is distinctly creditable.

At 5.30 a.m. on Tuesday Mr. Copland Perry took out the school machine, and made a fine flight of 30 minutes' duration. He steered many small left-hand circles in the centre of the aerodrome, and accomplished two splendid figures of eight before descending *en vol plané*. Captain Loraine followed with some straight flights before the wind got up.

On Wednesday morning about 7 o'clock the result of Mr. Copland Perry's previous clever practice was seen during the tests for his *brevet*. These he accomplished with consummate grace on the *Valkyrie*, making each of the two necessary flights, in which five figure eights have to be steered in about 10 minutes—a very smart performance, necessitating very close trimmed "8's."

Llandudno and North Wales Aerodrome.

GUSTY winds have prevailed all through the week, and several applications for passenger flights could not be entertained owing to the weather.

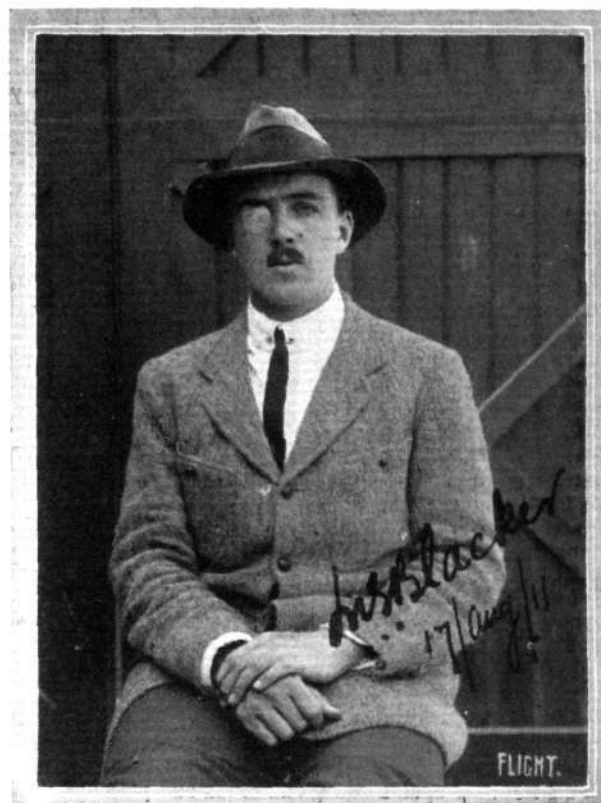
We are pleased to report that M. Favre, who met with an accident the other day, though not up yet, is progressing very favourably.

Salisbury Plain.

Bristol School.—On Wednesday of last week tuition was very brisk during the morning, and all pupils received good flights, while Captains Pitcher and Hoare, both of the Indian Army, gained their certificates in very good style. They both joined the school on the same day (July 26th), and their progress has been uniform throughout their tuition, which occupied four weeks to the day. In the evening Gilmour arrived, having flown from Filton, covering the fifty miles in an hour and twenty minutes, with the wind against him for the great part of the way. He finished his journey in the dark, and was guided by a beacon which had been kindled.

Weather was again good on Thursday, and plenty of tuition work was done. In the morning Jullerot gave lessons to Lieut. Newall, and Fleming took Mr. Lee—a new pupil who is attached to the Chinese Government—and Mr. Smith Barry, while Busteed instructed Mr. Wheeler, R.N. and Lieut. Watts. In the evening a nasty breeze sprang up, and darkness coming on shortly after 8 o'clock, flying was restricted. However, Gilmour took up Mr. Lee, Jullerot, Lieut. Bower, R.N. and Busteed, Lieut. Newall.

Conditions were ideal on Friday, when no fewer than nineteen flights were made in the morning. In addition to the usual



Mr. W. E. Blacker, one of the Bristol pupils who last week secured his pilot's certificate at the Salisbury School.

passenger flights, several pupils executed good solos. Harrison made one circuit, and Mr. Gibson flew his first two straights successfully, while Lieut. Clarke Hall, R.N., who had been taking tuition at the Brooklands school, covered two very good circuits. Lieut. Bower made two beautiful circuits at 300 feet each, landing very neatly. In the afternoon Sir George White, Bart., arrived with a party, one of whom, Mr. E. J. C. Sinton, went for passenger flights with Messrs. Gilmour and Jullerot. Exhibition flights were given by Messrs. Busteed, Gilmour, and Jullerot, and the ordinary tuition work was resumed. A novel feature of the day's work was the passenger flight which Jullerot gave to Prier. This was the first time that Prier had been on a biplane, and he intends to pilot this type of machine as well as the monoplane, on which he gave a very fine exhibition later in the afternoon, finishing with a perfect landing, although the wind was blowing obliquely against him. Lieut. Bower did a good solo, lasting a quarter of an hour, and Lieut. Clarke Hall, R.N., flew the first half of his certificate test.

In the morning of Saturday Lieut. Clarke Hall took his certificate. His tuition had lasted exactly a week, he having joined the Bristol school on Saturday, August 19th. He was thus the third officer of the Imperial forces to take his certificate at the school during the past week. During the past month no fewer than eight naval and military aviators have received *brevets* at the Bristol school. School work continued all the morning, Messrs. Cockerall and Harrison and Gibson all flying circuits and landing very neatly. Most of the pupils are almost ready to take their *brevets*, and a spell of good flying weather is all that is needed to secure quite a little harvest of certificates for the Bristol school within the next few days.

Southport Aerodrome.

ON the 23rd ult. Mr. Gaunt made several flights over the fore-shore on his baby biplane, and although the condition of the shore was bad he made very successful landings. Little flying was attempted again until the 28th. In the morning some fine flights were made, and later at 4 p.m., when Mr. Gaunt had an exciting moment or two during a squall. When a mile out and 40 ft. up, he was tossed up over 60 ft. one second, only to drop the next, and when near *terra firma* a cross gust shot him up again almost capsizing the machine. Mr. Gaunt, however, by skilful warping for level again managed to land without damage.

The anemometer reading recorded a fairly steady 15 m.p.h. with a sudden squall 32 m.p.h. at this period, whilst the anemoscope reading shows the first squall gust W. by N. and the second gust S. by E.

A local enthusiast, Mr. Pochin, is building a monoplane and hopes to have it ready for trying here in about six weeks time.



Mr. Herbert Spencer, who has just qualified for his pilot's certificate at Brooklands, on a biplane constructed by himself.

AIR EDDIES.

AFTER contributing largely in getting the Salisbury Plain "Bristol" school into its present state of excellent organisation, Pizey and Fleming are going to concentrate their energies, from September 1st onwards, on the Brooklands school.

Howard Pixton will probably transfer his work to the Plain, so that his genial self and his consistent and masterly handling of the Bristol will be sadly missed at the track.

"Claudie" Grahame-White and "Tommy" Sopwith are doing a great deal over Boston way to show the Candy Kids that "they've got to go some" to beat us on skill in piloting. On the first day of the meet G.-W. got away with both the speed and the altitude prizes, and that on a machine that he'd never flown before—a 70-h.p. Nieuport, while T. O. M. captured the quick-starting award and ran second in the bomb-dropping.

Talking of "bomb-dropping" reminds me of Grahame-White's suggestion for a poster to advertise his exhibition in Philadelphia during his last tour in the States. Below the characteristic stunt headlines such as "Aerial Switchback," "Knocking down ninepins with the tail skid" and "Pushing perambulators with the propeller," G.-W. suggested "Bomb-dropping by Drexel" and "Bum-flying by Clifford Harmon."

It should be mentioned that Harmon prefers to manipulate his lever as he would a beer engine.

Mr. W. C. England, manager of the Burma Motor and Engineering Co., Rangoon, who recently came over from India to qualify for his ticket at the Grahame-White School, has bought a Howard Wright biplane. He is shipping it back to Rangoon with him, in which district he proposes giving exhibition and passenger flights.

Since the publication recently in *FLIGHT* of a few notes on fabric varnish we have received many inquiries for the addresses of firms who market a really good proofing preparation. Although there are several English varnishes in the experimental stage, I do not yet know of one that has been perfected sufficiently to merit its being specially exploited by us. We may mention, however, that the "Emaillite" varnish used by both the Nieuport and the Deperdussin firms is handled by Messrs. A. Levue, Heitz, et Cie., Razeux (S.-et-O.), par Epervon (E.-et-L.), France. "Emaillite" is admittedly a very excellent "dope," and I am very pleased to

be able to furnish their address. At the same time it would be a greater pleasure to have been able to recommend a British firm.

An example of what can be done by one who really studies the requirements of the aviator is furnished by the success that Eric Clift has met with in producing his compasses and maps. The said Clift has simply busied himself in obtaining a thorough grasp of what pilots look for in a compass, with the result that, in these times, one is almost considered out of fashion who doesn't use a "Clift." I should like to see him directing his attention to the production of a really good varnish, as I feel convinced that he would turn out something well worth having.

Pierre Prier, besides being a clever pilot, has proved a capable designer, for the new monoplane that has been constructed to his drawings by the Bristol firm not only possesses many interesting constructional points, but, by the way in which Prier flew it over the Plain last Friday evening, it is safe to hazard the opinion that it will capture a few speed prizes in the near future. We hope to publish an illustrated description of the machine in our next issue.

Hendon *habituees* will be glad to hear that Frank L. Champion, who will be remembered by Hendonites as that delightfully droll "Candy Kid" who came across from Southern California to graduate at the Blériot School, is doing really well out West at Los Angeles. He is now flying a Gnome-Blériot, the machine purchased from Radley by Earle V. Remington at the Los Angeles aerodrome. In order to demonstrate to a Long Beach committee his ability to give exhibitions at the forthcoming midsummer carnival, Champion flew there from Los Angeles, a distance of roughly 20 miles, and circled over the town at a height of 1,500 feet. It is hardly surprising to hear that as a result of his flight, which, by the way, was his first since his return to the States, he has been engaged to fly at the Long Beach Carnival festivities. Since then he has succeeded in falling into the sea—accidentally, or for advertisement's sake, we wonder! That aviators are drawn from all sources is pretty well known. Champion formerly carried on a photographer's business at Long Beach.

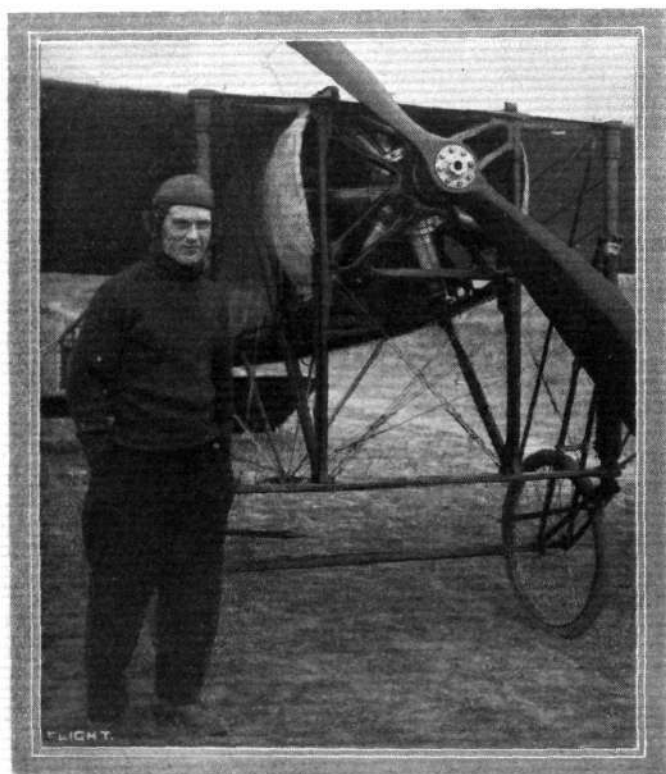
That the management at Hendon have reduced the rental of the hangars there, should be an extra incentive for those who own machines or intend running a school to centre their operations at an aerodrome so near the Metropolis. The hangars have much to commend themselves, being fitted with electric light, wooden floors, and a type of door that is raised or lowered with a minimum expense of time and exertion.

Lewis Turner, who will be remembered as the first Englishman to obtain his credentials after the "figure of eight" tests were imposed, will, before the week is out, be travelling to Russia, where he has been engaged to carry out the preliminary tests of a biplane embodying new ideas in automatic stability. It is understood that the machine has been secretly built in England, in fact, not so very far from London. From the fact that Turner has put in a lot of time lately at the E.N.V. works, one may be almost sure that this new aeroplane is equipped with a motor of that ilk. Further details are impossible to obtain, as those who are really in the know are guarding their secret most jealously.

It looks as though the Valkyrie school will soon be passing quite a bunch of pilot aviators. Perry, who has all along been a most promising pupil, should be a fully-qualified pilot by the time these lines appear in print, as he has already reached the figure of eight and *vol plané* stage. Lieut. Wells is also ready for his tests, but he is unfortunately away ill. Then comes Ridley-Prentice, who is now holding the reins of management at the Aeronautical Syndicate. He, of course, has already qualified on a Farman biplane, but no doubt he will do the tests again on a Valkyrie, if only to show he is equally master of his new mount.

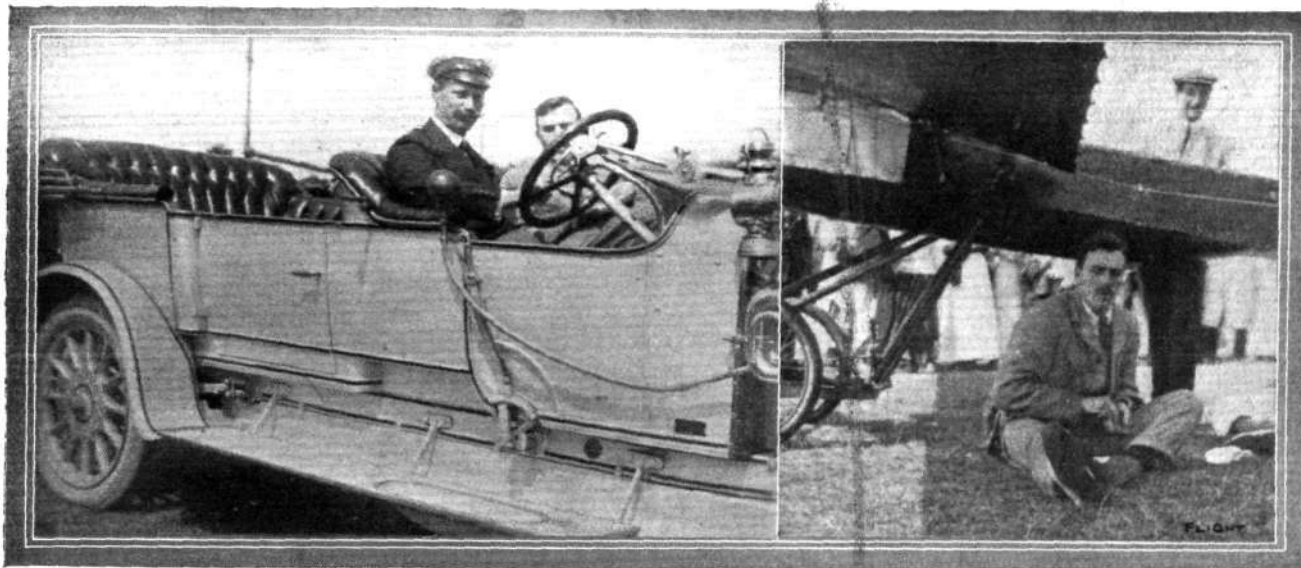
Encouraged by the success of his aerial post scheme at the Allahabad Exhibition in India last year, Capt. Windham has been the prime mover in inaugurating the similar "stunt" in England. The mails, posted in the special boxes provided, are to be transferred to Hendon by car, and from thence flown to Windsor by Grahame-White's pilots—Greswell, Hubert, and Driver. To make sure of the route, Greswell and Driver flew over to Windsor early last Saturday morning. Driver's performance was especially creditable, as not only was it his first venture outside the aerodrome, but he carried a passenger in the person of Capt. Vandeweyer.

"OISEAU BLEU."



Mr. Frank L. Champion with Radley's old Gnome-Blériot monoplane, on which he is now flying at Los Angeles, South California. Champion, it will be remembered, was a pupil of the Blériot School at Hendon.

BRITISH NOTES OF THE WEEK.



Photos by Mr. William J. Hitchman.

AVIATION IN THE ISLE OF WIGHT.—Mr. Valentine, who has been flying his Deperdussin monoplane, is seen arriving by car on the left at the Ventnor grounds; and on the right, waiting in the shade of his machine for a pair of mislaid goggles before starting his flight.

Mr. Cody's Second Try for the Michelin Cup No. 2.

ILL luck again pursued Mr. Cody on his second attempt for the British Empire Michelin Cup, No. 2, on the 24th ult. He had very nearly completed his course of 125 miles, *via* Andover, Reading, Hendon and Brooklands, when the reserve petrol tank became loose, necessitating Mr. Cody holding it with one hand what time he steered with the other. In this way he was able to reach Mytchett. There his petrol gave out and he was forced to descend, which he did safely only a mile or two short of his destination.

The New French Michelin Aviation Prize.

THE MICHELIN TYRE CO., of London, wish us to state that the above prize is not being offered by them, as might be inferred possibly by our paragraph in last week's issue, but by "Michelin et Cie." of France.

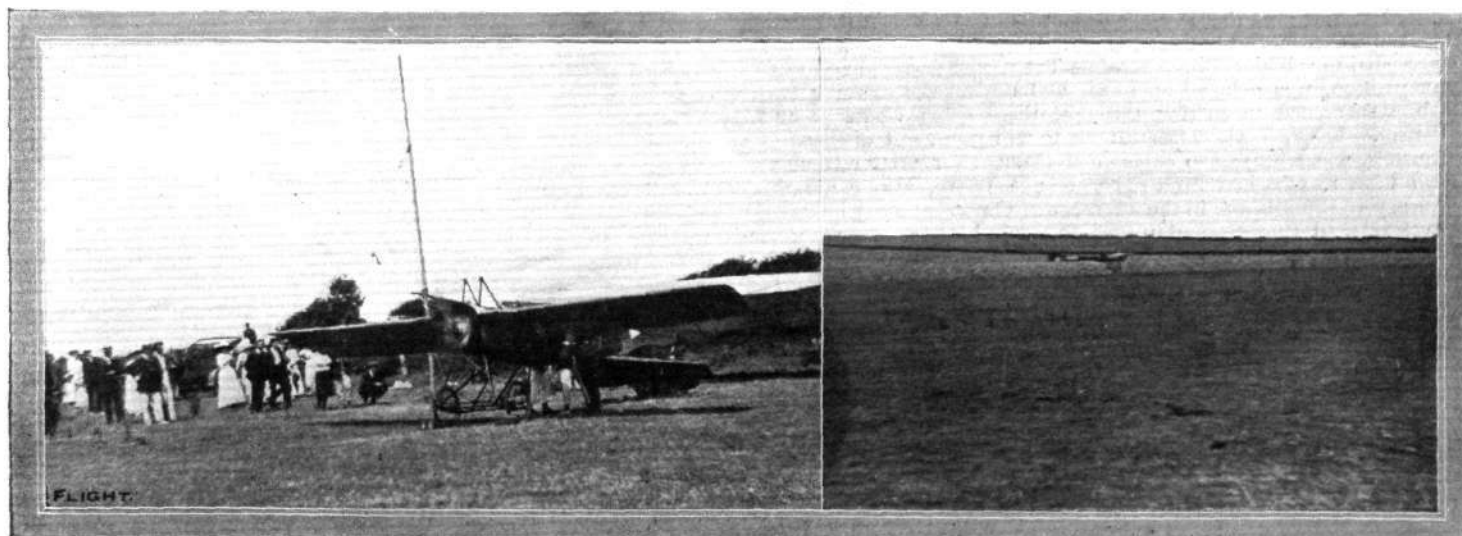
The First Territorial Pilot Aviator.

LIEUTENANT WALTER LAWRENCE, who has recently been granted his *brevet* by the Royal Aero Club, and whose portrait we published on August 12th, has the distinction of being the first Territorial officer to obtain his certificate in aviation, and it augurs well for the future of this the youngest of our Territorial officers that he obtained his honours after the shortest flight as regards time.

He also had a ticklish experience at a critical moment of his *brevet* tests. At present there are no particular "rules of the road" for the air at the various flying centres, and as a rule little watch is kept on aviators, who go up just how and when they please. Thus it happened that whilst Lieut. Lawrence was making the needful flights to gain his certificate, another aeroplane crossed his path just at the critical moment when he was making a right-hand turn. Many an experienced aviator might have easily lost his head, but Lieut. Lawrence surmounted this unexpected difficulty in masterly fashion, and descended amidst the admiring plaudits of the onlookers. Lieut. Lawrence holds several records in the Indian motoring world, where his name is well known, more especially for the run from Mahabeshwar to Bombay, which he accomplished "non-stop" on his 16-h.p. Adams with a full load up.

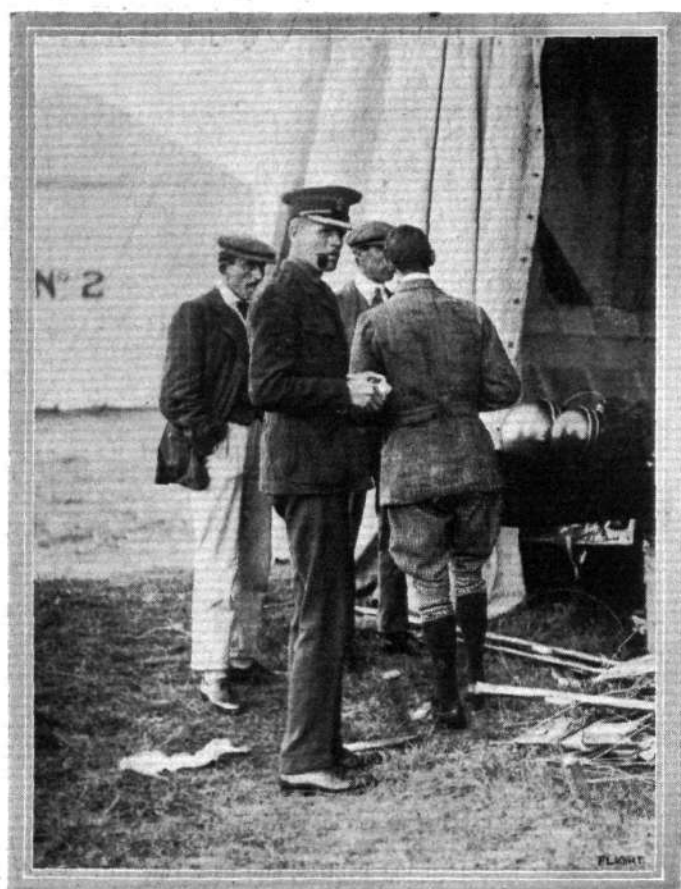
The Late M. Petit Pierre's Widow.

IN response to our note last week as to a subscription being started for the widow of the late M. Petit Pierre, who was done to death by the man Hanot, we have received a cheque for 5 guineas, generously contributed by the Aeronautical Syndicate, Ltd., of the London Aerodrome, Hendon, of which Mr. Barber, the designer and constructor of the Valkyrie monoplanes, is the leading spirit. We have forwarded this to Mme. Petit Pierre.



Photos by Mr. William J. Hitchman.

Mr. Valentine, on his Deperdussin machine, tuning up his Gnome engine for a flight at Ventnor in the Isle of Wight. On the right Mr. Valentine is just landing after an exhibition trip in the air.



MILITARY AVIATORS' CAMP AT HARDWICK.—Although the autumn manoeuvres have been cancelled and East Anglia will not have the opportunity of witnessing work done by the Army pilots as anticipated, an Army aviation camp has been established at Hardwick, near Cambridge, and a number of very successful flights have been carried out by officers. Amongst the most prominent is Lieut. Barrington-Kennett, who recently flew from Oxford to Cambridge in several stages, arriving at Biggleswade on Monday of last week. Above Lieut. Kennett is seen in the foreground at the Hardwick camp, on the right being Capt. Fulton and beyond Capt. Stuart and Capt. Massy.



THE BELGIAN NATIONAL CIRCUIT.

THE last stage of the Belgian Circuit from Antwerp to Brussels was quite exciting. On the 22nd ult., Hespel on his Deperdussin succeeded in reaching Brussels, while Tyck, who was leading in the competition, was delayed at Leau, and during the morning two others succeeded in getting through, these being Contenet and Parisot. Later, Tyck continued on to within a short distance of Brussels, when he had to come down through carburettor trouble, and Lanser, who had been delayed at Antwerp, also made the journey to Brussels late in the afternoon. On Wednesday morning Tyck reached Brussels, and in time to retain his position as leader. Provisionally, the result is therefore as follows:—1, J. Tyck (Blériot); 2, Lanser (Deperdussin); 3, Hespel (Deperdussin); 4, Contenet (Wright); 5, Parisot (Farman).



HÉLEN'S WONDERFUL FLIGHT FOR THE MICHELIN CUP.

It would be difficult to conceive a more telling demonstration as to the progress made in aviation than the magnificent effort of Hélien for the International Michelin Cup on Saturday last. Only eight days before had he succeeded in obtaining his *brevet*. Flying over a course of 102.4 kiloms. from Betheny to Somme-Vesle, he completed eleven laps, stopping at the end of each third lap for a short rest, and completing a distance of 1126.4 kiloms. in 13h. 47m.

The Aerial Post to Windsor.

ARRANGEMENTS have now been completed for the starting of the aerial post from London to Windsor on Saturday next, the 9th inst. The starting point will be the London Aerodrome, Hendon, while the terminal station will be Windsor Great Park. Only special picture postcards and envelopes issued by the Honorary Organising Committee, by sanction of the Postmaster-General, will be carried by the mail and they must be posted in the special boxes at the places given below. The postcards will be sold at the price of 6½d. each and the envelopes and the correspondence cards at 1s. 1d. each. All expenses will be disbursed out of the amounts realised by the sale of the postcards and envelopes, the net profits being devoted to a public charity. Harrod's Stores, Ltd., Brompton Road; W. Whiteley and Co., Ltd., Queen's Road; Selfridge, Ltd., Oxford Street; Barnes and Co., Hampstead; Arding and Hobbs, Clapham Junction; Gamage's and Benetfink, Holborn; John Barker and Co., Ltd., Kensington; D. H. Evans and Co., Oxford Street; Secretary's Offices, General Buildings, Aldwych; London Aerodrome, Hendon; Stock Exchange.

New Model Clubs Suggested for Wigan and Stony Stratford.

A PROPOSAL is on foot to start a Model Aero Club for Wigan and district, and any person interested is asked to communicate with Mr. S. Grundy, 7, Ridyard Street, Platt Bridge, near Wigan. We also learn that with the idea of encouraging the design and flying of kites and model aeroplanes locally, a club is being formed at Stony Stratford. Full particulars regarding the project can be had from Mr. Oswald Hamilton, Junr., Lancaster Cottage, Old Stratford, Stony Stratford, Bucks.

Aeroplanes Entering America.

WE have received many inquiries lately as to what arrangements have to be made with the American Customs House for the temporary importation of aeroplanes into America.

If an aeroplane is sold and exported to a customer in America, the full duty of 45 per cent. of its value must be paid. On the other hand, if the importation is only of a temporary nature, it is merely necessary to approach the American Consulate in London, either directly or through any well-known firm of shipping agents, and obtain from them a "Consular invoice" for the machine.

This can be obtained at a total cost of 10s. 4d., and no deposit on the value of the machine is required.

The Consular invoice is virtually a passport, and admits the machine into the country free of any charge, on condition that it is withdrawn from the country before the expiration of two months.

An extension of the period can be arranged if specially desired.

How Punch Sees It.

WIELAND, the Swiss aviator, has just had a remarkable escape. He fell on a flock of sheep, of which five were killed, but the animals broke his fall. It is now proposed to instal at Brooklands and elsewhere sheep in groups of not fewer than five. Arising out of this incident we learn that French aviators have adopted as argot for landing the phrase, "Revenons à nos moutons."—*Punch*.



19s. He was using a two-seated Nieuport monoplane, fitted with a 50-h.p. Gnome engine and Chauviere propeller. He started at 5 o'clock in the morning, and taking just over an hour for each lap, he had covered three circuits when he came down at a quarter past eight. Resting for only 24 minutes, he started off again and did another three laps, landing for the second time a few minutes before noon. This time he remained down for 28 minutes. He then set off again and covered a further three laps, by which time it was nearly half past four. As the time was getting on a rest of a quarter of an hour was all that was taken, and at 6.45, after completing two more laps, he landed for the last time, having then covered 1126.4 kiloms. (704 miles), completely putting in the shade Vedrines' record of 811.2 kiloms. in 10 hrs. 56 mins. Not content with this, as soon as he was released by the official timekeepers he once more mounted his machine and flew over to the Nieuport headquarters at Mourmelon.

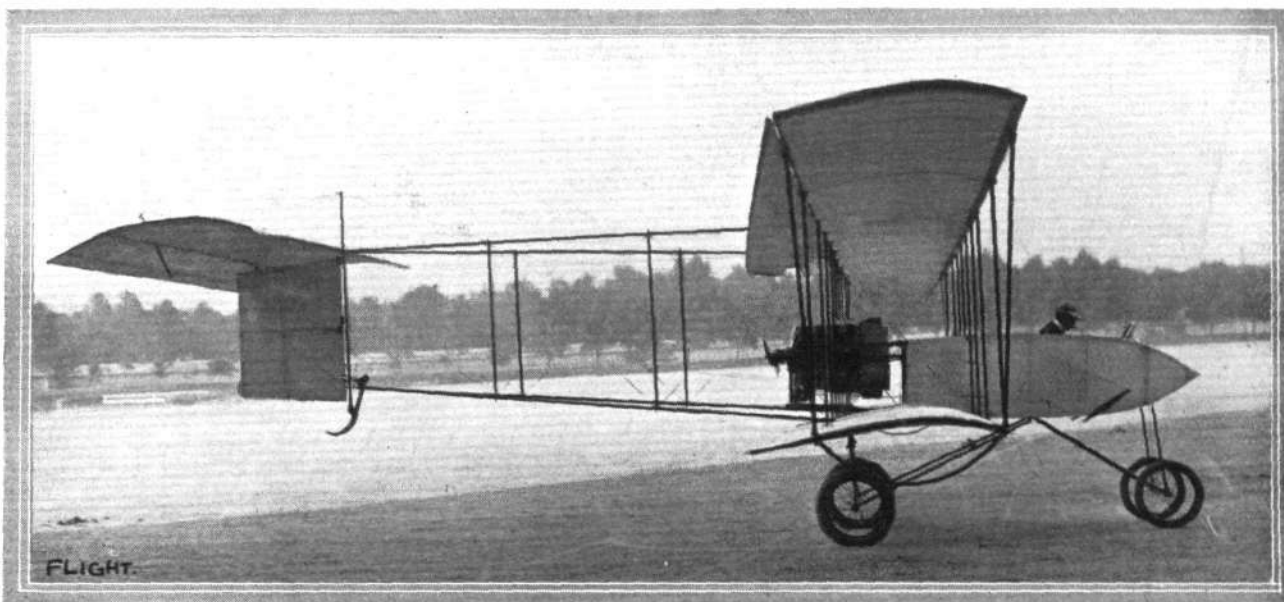
Lap.	Distance. kiloms.	Time. h. m. s.	Lap.	Distance. kiloms.	Time. h. m. s.
1	102.4	1 9 19	7	716.8	8 47 17†
2	204.8	2 13 35	8	819.2	9 54 11
3	307.2	3 15 41	9	921.6	11 24 51
4	409.6	4 48 4	10	1024.0	12 28 56‡
5	512.0	5 55 55	11	1126.4	13 47 19
6	614.4	6 52 25‡			

* Stop 24 mins.

† Stop 28 mins.

‡ Stop 15 mins.

FOREIGN AVIATION NEWS.



The latest Voisin biplane built for military use, with extensions on the upper plane. It is fitted with an 8-cyl. 60-h.p. Renault engine. In order that the pilot may see the ground in front of him, a large mica window is fitted in the bottom of the fuselage.

More Competitors for the Michelin Cup.

THE competition for the Michelin Cup is getting very keen, and Wynmalen is practising steadily at Etampes on his Anzani-engined Deperdussin, in view of his forthcoming attempt for the prize. On Monday, also at Etampes, Pascal on a Gnome-engined Deperdussin made an attempt for the Cup, but, unfortunately, he had to give up through a faulty landing, after covering 812.2 kiloms. He will, however, make another attempt shortly, when it is hoped he will have better fortune.

Civilians Gain the French Military Certificate.

ON the 22nd ult., Tabuteau on his Morane monoplane made the three tests for the French military superior certificate over a course from Chantilly to Soissons and back, and last Sunday, Maurice Prevost, chief pilot at the Deperdussin School, also qualified for this coveted distinction, his speed during the three tests being 110 k.p.h. Latham, Vedrines and Gaston Caudron have also qualified for and been granted similar certificates.

More R.E.P.'s. for French Army.

THREE new R.E.P. monoplanes, fitted with 60-h.p. R.E.P. motors, were put through their paces at Buc on the 23rd ult. by

Amerigo and Bobba. Each of them easily succeeded in getting up 300 metres in less than five minutes, while the descent was made *en vol plané* with motors stopped.

The Three-Seated Military Bleriot.

AT Etampes, on the 24th ult., Leblanc was testing a new military Bleriot monoplane fitted with three seats, and with Lieuts. Lantheaume and Massol occupying the passenger seats, two rounds of the ground were made. The machine has been built in view of the military trials, and is fitted with a 100-h.p. Gnome engine.

Four on the Voisin-Canard.

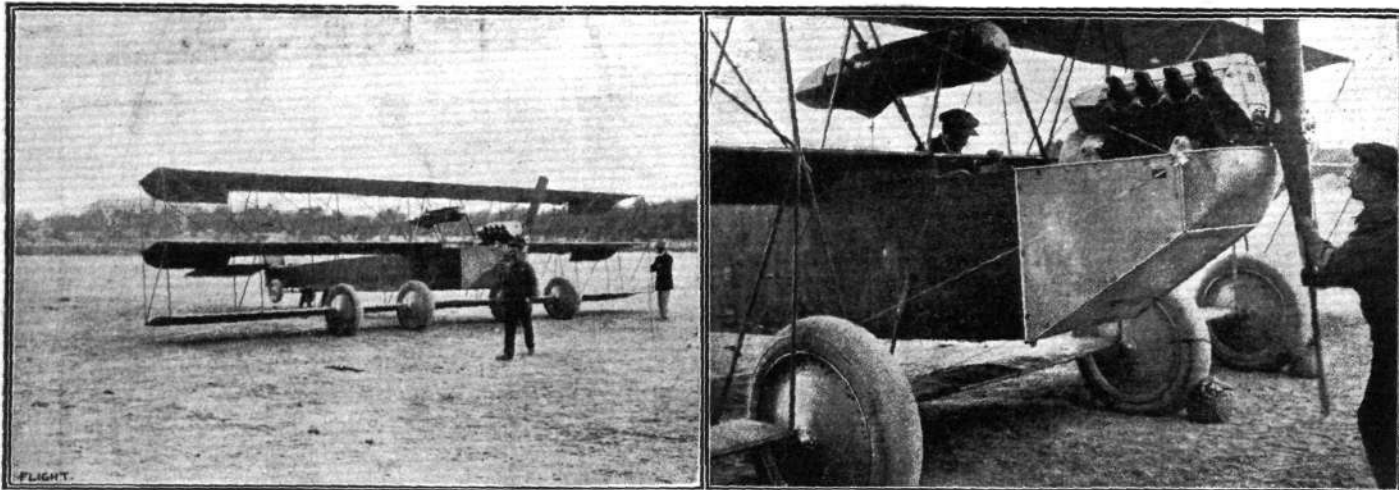
WHILE testing one of the Voisin-Canards at Issy on the 23rd ult., Colliex piloted it for six rounds of the ground, carrying three passengers beside himself. He was also flying with a similar load on the 25th ult.

Vedrines Fogbound at Issy.

VEDRINES was unable to make his weekly postal trip from Issy to Trouville on the 23rd ult., owing to a very heavy fog, and on the 25th ult. he flew his machine back to the Morane-Borel School at La Vidamee.



The Astra Company have just produced a biplane in which the monoplane type of body is the principal characteristic. The above side view, taken at Villacoublay, gives a very good idea of the arrangement of the new machine.



A TRIPLANE, ONE OF THE LATEST PRODUCTIONS OF THE ASTRA COMPANY.—This is another of the machines designed in view of the French military aeroplane competition. The canoe type of body is similar to that of the latest biplane, but other special features are the design and arrangement of the wheels. The span is 12 metres, and the lifting surface 45 sq. metres, while the propeller is driven by a 60-h.p. 8-cyl. Renault motor.

Military Tests in France.

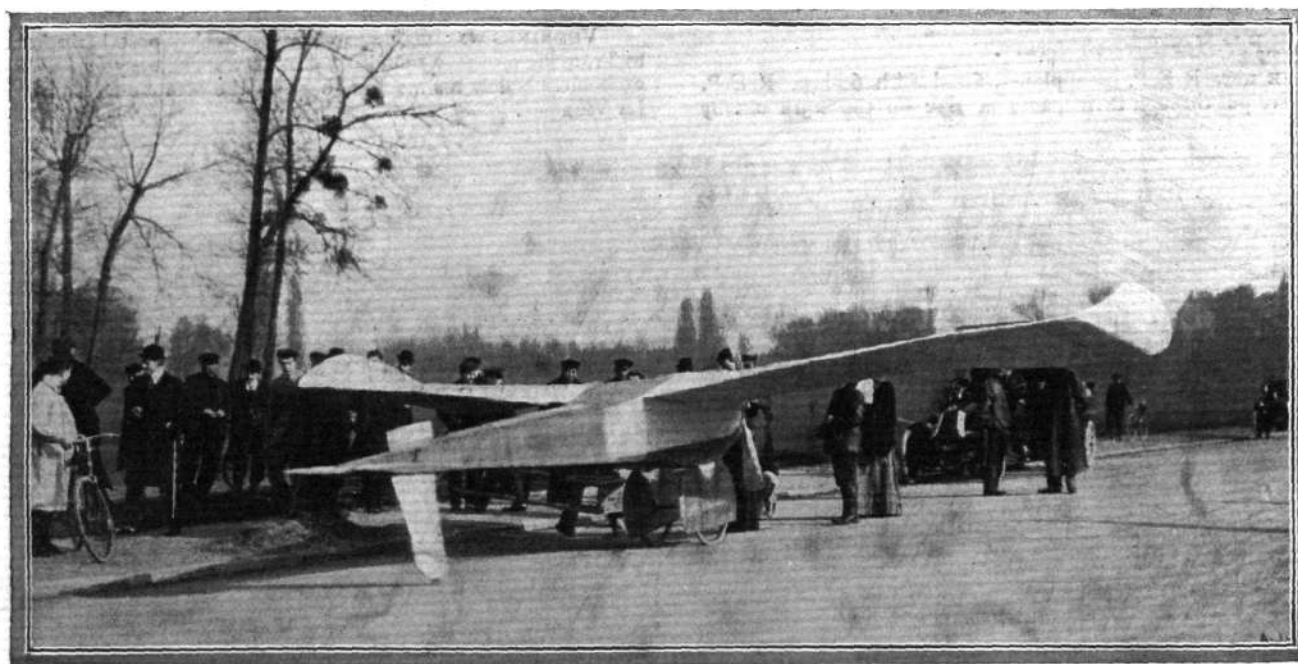
SEVERAL interesting tests, which may help our lethargic Government to accept aviation as a possibility in the remote future, have been carried out during the past week or so by French military aviators. On Monday, for instance, Capt. Bellenger and Lieut. Chevreau were ordered to ascend and locate the position of eleven batteries of artillery between Chalons and Vitry le François. Before starting, every effort was made to mislead the officers as to the position of these batteries, and at the last moment they were all purposely re-arranged. In spite of this, however, the two aviators found little difficulty in speedily locating all the eleven batteries. On the following day Capt. Bellenger and Lieuts. Menard and Blard were at Verdun, and were sent to Toul to obtain full details as to how far the work in progress at that fortress had advanced. A sealed report had been sent by the Governor of Toul, and on a comparison being made between this and reports sent in by the aviators on their return, it was found that not a detail of importance had escaped their observation. Lieut. Blard carried as passenger Capt. Lebeau, who was able to secure some good photographs of the fortress.

Blériot to Try a "Canard."

DURING his vacation at Hardelot, M. Louis Blériot has been

giving serious attention to the study of new types of machines, and it will come as news to a good many to hear that a monoplane of the "tail first" type is nearly ready for its trials. It will be remembered by those of our readers who followed the progress of aeronautics in the pages of the *Auto*, before *FLIGHT* was started, that M. Blériot's first success, like that of M. Santos Dumont, was made with a machine with a tail in front, although in the case of M. Blériot it was a monoplane. Below we give a picture of this machine, which appeared at Bagatelle during March, 1907. It was experimented with by M. Blériot for some months both at Bagatelle and Issy, and in September he flew 150 metres, winning a medal and 200 francs. He found great difficulty in steering the machine, however, and in the November was trying a new machine, which was built on very similar lines to the Blériots of to-day, with the tractor screw in front and the tail behind.

As we have already said, the new "Canard" is built on very similar lines to the 1907 machine, except that the steering is done by ailerons, while, of course, the engine will be a Gnome. The pilot will sit slightly in front of the leading edge of the main plane. M. Blériot attributes his want of success with the original machine to his ignorance of the art of flying, and feels certain that with the experience he now has he can make the "tail first" type, which he has never ceased to maintain is the most efficient, a success. In



The above photograph illustrates the original monoplane tried by M. Blériot at Bagatelle and Issy during 1907. In it the use of struts and wire ties was reduced to a minimum, and one of the characteristic features was the upturned wing-tips. M. Blériot has just built a new machine on somewhat similar lines which is to be tried shortly.

this connection we may also refer to the description of the Dixon monoplane of somewhat similar design, which is described elsewhere in this issue.

A Camera for High Flyers.

CAPT. LEBEAU of the French Army has designed a camera specially intended for military aviators, which it is claimed will secure photographs at heights of 4,000 ft. and at a speed of 60 miles an hour, even when the details are invisible to the naked eye of the aviator.

The Boulogne Meeting.

THE third day of the flying at Boulogne on the 22nd ult. saw some very instructive flying. Pourpe and Darioli on their Blériots, and Caudron and de Laet on their Caudron machines flew first along to Wimereux and then went on to Ambleteuse, from which point, after partaking of refreshment, the four aviators returned to Boulogne. Darioli then went on to Paris Plage and in the fog Pourpe lost his way and came down not far from Hardelot. In the morning Pourpe flew over to Paris Plage where he was soon joined by Caudron and de Laet. During the day all four aviators gave displays, and some passenger carrying was indulged in. In the evening Pourpe flew back to Boulogne in view of his projected attempt to cross the Channel.

A Cross-Channel Aerobus.

UP to the present only two aviators have ventured to take a passenger across the English Channel, but information has been received at Calais that M. Roger Sommer has built a large biplane with which he shortly intends to make a trip from Calais to Dover carrying eight people.

To the Races by Aeroplane.

LEAVING Etampes on Monday morning, M. Etienne Giraud flew in his aeroplane to Lamotte Primelles, covering the 166 kiloms. in 2 hrs. 10 mins. After the races were over, he returned the same way to Etampes without any difficulty.

Mdlle. Dutrieu lands on a Shed.

WHILE taking M. Leon Bollee for a flight at the Mans Meeting on Monday, Mdlle. Dutrieu landed on the roof of one of the Grand Stands. The pilot and her passenger were uninjured but three of the spectators reported slight injuries.

Aeroplanes at French Manœuvres.

AT the forthcoming French manœuvres the Seventh Army Corps is to have two aviation sections under the command of Captain Felix. One section will consist of four Breguet biplanes and three Blériot monoplanes; while the second section will be composed of three Farman biplanes, three R.E.P. monoplanes and three Blériots. The Sixth Army Corps will also have an aeroplane section made up of six Farman biplanes, three Nieuport monoplanes, one Deperdussin and three Blériots.

Vedrine to Blow up a Bridge.

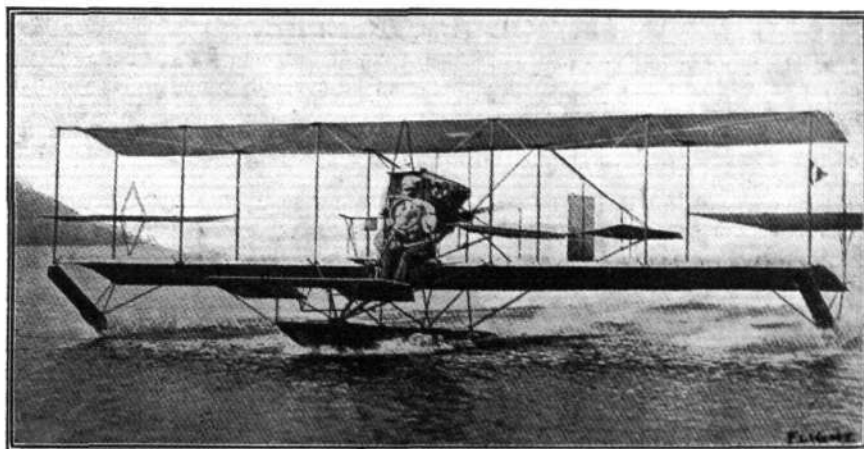
AS is well known from his utterances in this country, Vedrine has very definite ideas as to the effective damage which could be done by the dropping of dynamite bombs on predetermined places. In view of the offering of the new Michelin target prizes in France, he has resolved to demonstrate his ideas in a practical manner. Having heard of an old bridge which has been condemned and is to be demolished, he has offered to take up the dynamite bombs required for its destruction and to drop them on the bridge. He is confident of success.

The Wurtemberg Cross-Country Race.

THE 10th to the 13th of September has now been fixed upon for the cross-country flying competition in Wurtemberg. On the 10th the machines will assemble at Weil, and the following day they will fly the first stage from Weil to Ulm, a distance of 120 kiloms. The following day they will rest at Ulm, and then on the 13th they are to cover the second stage to Friedrichshafen, 94 kiloms. away. The first prize will be £1,000, offered by Count Zeppelin; the second prize, £400, offered by the City of Stuttgart; third prize, £250, also offered by Count Zeppelin, and the fourth, £200, offered by the town of Esslingen. In addition, the Minister of War has offered a prize of £120, and will also buy the winning machine.

Aeroplanes at Italian Manœuvres.

AT this year's manœuvres of the Italian Army several military officers who have been trained as pilot aviators have taken part. The aviators were under the command of Capt. Ginnocchio, and two



A good idea of the general arrangement of the two-seated hydro-aeroplane built for the U.S. Navy by Glenn H. Curtiss. It is fitted with duplicate controls, the ailerons being operated by shoulder-braces, while the steering-wheel is hinged so that it may be passed from one to the other by the two occupants of the machine.

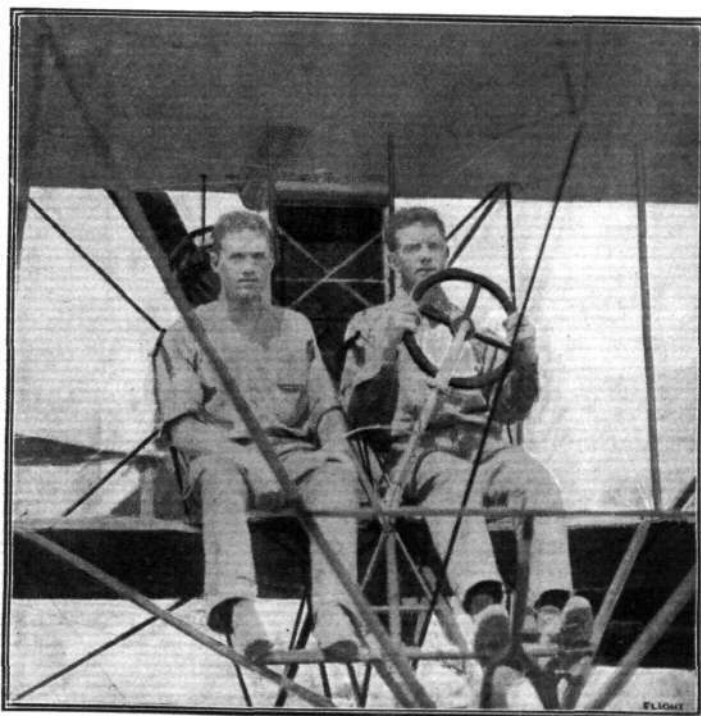
of the best performances were made by Lieut. De Rada on a Farman, and Naval Captain Rossi on a Nieuport, each of whom on the 21st ult., flew for 130 kiloms.

Fatal Accident in Russia.

WHILE flying a Blériot monoplane in the neighbourhood of St. Petersburg on Monday evening, Lieut. Zolotuchin of the Russian Army fell from a great height and sustained such injuries that he died during the night.

Attwood reaches New York.

ALTHOUGH it was rumoured that Attwood had abandoned his flight from St. Louis to New York when within a comparatively short distance of his destination, Dame Rumour proved to be a lying jade as usual, and Attwood brought his long flight to a successful conclusion on Friday of last week. He was feeling unwell on reaching Syracuse, but after a short rest was able to proceed and got to Castleton on the 23rd ult., stopping overnight on the way at Cornhall. Leaving Castleton on the 24th, he reached Hook, and on Saturday he flew the remaining few miles to New York, where he landed on Governor's Island, thus completing the distance of about 1,500 miles in ten days.



Lieuts. Ellyson and Towers on the new Curtiss hydro-aeroplane of the U.S. Navy. The braces operating the ailerons can be seen on the shoulders of both officers, while the arrangement of the swinging steering-wheel is also clearly seen.

THE VALKYRIE PROPELLER.

MR. H. BARBER has invented and patented in most countries a clever process by which wooden propellers can be covered to any desired thickness by a skin of copper.

The wooden propeller is treated primarily by his process and then coated with finely divided graphite on which the copper is deposited electrolytically.

When a sufficient thickness has been deposited the propeller is removed from the copper bath, burnished in the usual way and highly polished. The copper skin not only covers the blades but also the boss, so it is impossible for the sheathing to become detached when subjected to high engine revolutions.

In addition to increasing the fly-wheel effect of the propeller and reducing its skin friction, this brightly polished skin of copper has the effect of strengthening it to a remarkable degree and rendering it impervious to extremes of temperature and humidity.

SCHOOL AERO CLUB NOTES.

By ROBERT P. GRIMMER, General Secretary, British Federation of School Aero Clubs.

JUST a few words of warning about the cheap foreign-made aero models, which seem to be almost universally stocked by dealers in preference to those of British make. In the first place, the Teutonic produced article is marked at a very tempting price—usually under 5s.—and its general appearance seems to leave nothing to be desired. A closer inspection will reveal it to be fitted with a tractor screw, and to be a modified copy of a Blériot type of monoplane. This usually convinces the purchaser of its flying capabilities, and the machines—and I am tempted to say not only the machines—are sold in large quantities. The would-be model flyer wends his way to a convenient field, and duly winds up. The rubber is so characteristically foreign that it seldom stands more than a hundred turns, the result being a sudden breakage. Our aero modelist, however, is perhaps of a careful disposition, and successfully winds up to sixty or seventy. He launches, and almost invariably one of two things happen. Either the machine goes up “à la helicopter” and falls on its tail, that caudal appendage suffering severely in the process, or, as more frequently is the case, it dives headlong to earth, completely smashing its tin tractor. The buyer is naturally disgusted, he feels inclined to use language which, if he were a Boy Scout, would ensure copious supplies of water being poured down his sleeve, and he goes away with the sincere conviction that model-flying is all rot, and that even Wilbur Wright himself could not make the silly things fly! It certainly is irritating to have thrown away five shillings or so, but the obvious remedy is the patriotic one of purchasing only British-made machines. I can strongly recommend the products of Messrs. Bragg-Smith, Burge-Webb, Ding and Sayers, Fairey, Fleming-Williams, Mann and Twining as being thoroughly reliable and scientifically designed machines.

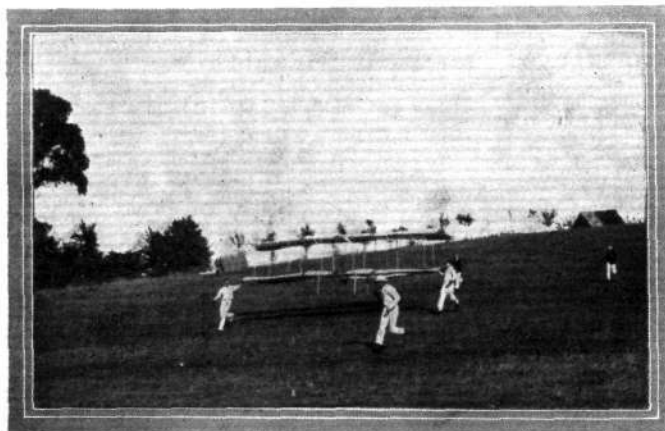
“I regret that we cannot see our way to allow our boys to take up model aeroplane flying, as we consider that this sport does not supply any appreciable amount of physical exertion, and is only a pastime for the slacker.” I wish the worthy headmaster who addressed these lines to me some weeks ago could be induced to spend a day in model flying with me, as, indeed, I invited him to. He would certainly considerably modify his views, even in the course of the first hour. In the first place, the case of models, 4 ft. by 3 ft. by 1 ft., has to be conveyed to the aerodrome—a three miles walk, with the temperature somewhere in the nineties. By the way, only the other day I had the pleasure of carrying this case over twenty miles to a competition by cycle, the train service being discontinued on account of the strikes. Next, a herd of some fifty animal bovines has to be “persuaded” half a mile out of the way, and a similar number of human bovines induced to retire to a spot where they will not continually trample on winders and lubricant

A NEW SHORT BIPLANE.

THE latest biplane to be built by Messrs. Short Bros. is considerably larger than the standard type, but its chief characteristic is that it is fitted with two 50-h.p. Gnome engines; but it is also distinguished by the fact that it has three propellers. The two engines are mounted fore and aft, and can be used either together or independently, and either furnishes sufficient power to keep the machine in the air. The combined engines can be used for rising from the ground and also when great speed is required in the air. One great advantage of such an arrangement is that it minimises the risk of a serious accident through the engine suddenly stopping. The new machine is now very nearly completed and will be put through its trials very shortly. It will be remembered that a prize of £3,000 was offered by Mr. Edwin Gould, through the *Scientific American*, for a competition among machines so arranged, but so far no entries have been forthcoming.

bottles. Winding is a distinctly backaching task, and involves two thousand turns per machine.

Now the model is off—and so am I—on a run of seven or eight hundred yards. The sun beats down furiously, the perspiration streams in torrents, one longs vainly for iced lemonade, but the model must at all costs be kept in sight. I see her execute a graceful *vol plané* into a tree some 60 ft. up, with no boughs for at least 12 ft. A rail is borrowed from a fence—I hope the omission was not noticed—and placed against the trunk, and up I go, experiencing in the course of the ascent one or two painful reminders of the presence of nails. The branches are reached and duly negotiated, and when one breaks and deposits me on a second bough some 6 ft. below, it is only an interlude and reminiscent of an air pocket I once experienced in the course of a passenger flight. The model is reached, lassoed with string, and duly glided down to my friend below. I commence my own descent to the keen and unappreciated interest of a crowd of the great unwashed, and end by “pancaking” at the feet of a specially slack-looking specimen of the genus Weary Willie, who has languidly been watching the recovery of what he terms “the airship.” Space forbids me to chronicle the wading, the swimming, the episode with the game-keeper, the incident of the fat market woman and the altercation with the landlord, as well as a few other events of lesser interest, but seriously I ask, “Can this be *only a pastime for the slacker?*”



Mr. Cooper's glider, as referred to last week in the School Aero Club Notes, being tried down the gliding hill.

Helpful Signals for Dirigibles.

INSTRUCTIONS have been issued by the military authorities at Aldershot that when an airship is seen close to the ground and flying a signal consisting of a red cylinder hung below or flying behind (meaning “I am going to land and need assistance”), troops in the immediate vicinity will help in any way that may be required. They will usually be wanted to catch a rope which will be dropped, and pull the vessel gently to the ground. Silence must be maintained so that any instructions shouted from the airship may be heard.

The King of Italy Ventures Aloft.

WHILE attending the manoeuvres at Casale Monferrato on Tuesday afternoon the King of Italy visited the dirigible sheds, and after inspection of “P. 2,” went for a cruise of about half an hour, passing over the Castle of Romara.

Explosion at Chalais Meudon.

AN unfortunate accident occurred at the Aeronautic Park at Chalais Meudon the other day, when, while two workmen were carrying a tube of compressed hydrogen, it exploded, killing them both instantly. Chalais Meudon, it will be remembered, is the headquarters of the French military dirigibles.

The Austrian Parseval Dirigible Out.

ON the 23rd ult. the Austrian Parseval dirigible left Fischamend at twenty to seven in the morning and after a voyage of 2 hrs. 40 mins arrived at Brunn, Moravia. After circling over the town the dirigible landed on the military parade ground and remained there until 2 o'clock in the afternoon, when it returned safely to its headquarters at Fischamend.

BOULOGNE TO FOLKESTONE AND BACK.

It is becoming a matter of just ordinary interest now to fly the Channel, therefore beyond quite a short paragraph here and there in the lay Press, little notice has been taken of Pourpe's week-end flight from Boulogne to Folkestone and back. For some time he has been wishing to try the trip, and, opportunity serving as soon as he had finished his engagements at Boulogne, without any shouting he made a dash for British soil. Flying at a height of about 500 metres, he crossed the Channel quite easily, but, owing to haze, made too easterly a course and arrived at Dover instead of Folkestone. He circled above the Castle, and then landed in the Barrack Square on the Western Heights. He had left Boulogne at 6.25 and landed at Dover at 7.5 in the evening. At 5.30 on the

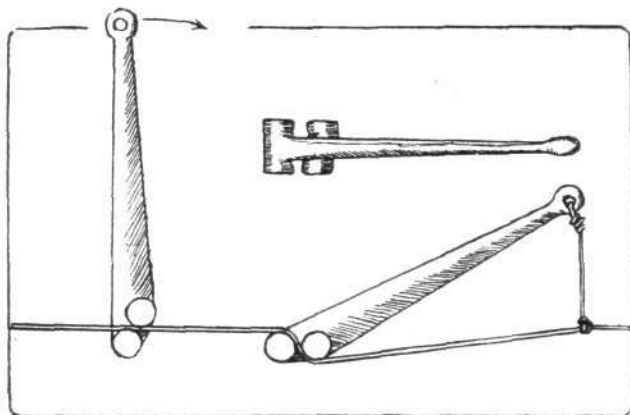
following morning, with the assistance of an officer of the Royal Irish Rifles and Mr. Eric Snepp, of the Dover Aero Club, he restarted, and after making a circle above the cliffs at Dover, headed off in the direction of Folkestone, landing there on the Golf Links near Shorncliffe Station. He then visited Folkestone in order to deliver to the French Consul a letter in Esperanto he had brought from the Engineer of the Boulogne Harbour Board, the letter pointing out the advantages of this weird language for aviators. By 9.38, having returned to Shorncliffe, he was in the air again on his way back to Boulogne, following in the track of a steamer which had left Folkestone at 8.50, and landing on the East Sands at Boulogne at 10.10 a.m., a matter of 32 minutes for the 30 miles.



IDEAS IN WIRE-STRAINERS.

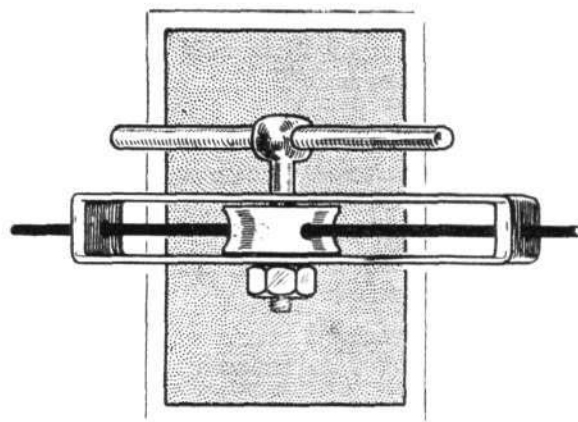
Two new ideas in wire-strainers are illustrated herewith, one devised by T. W. Clarke and Co. being the essence of simplicity

the other end. The wire-strainer introduced by Gratz, Ltd., is somewhat more complicated. It consists of an aluminium pulley



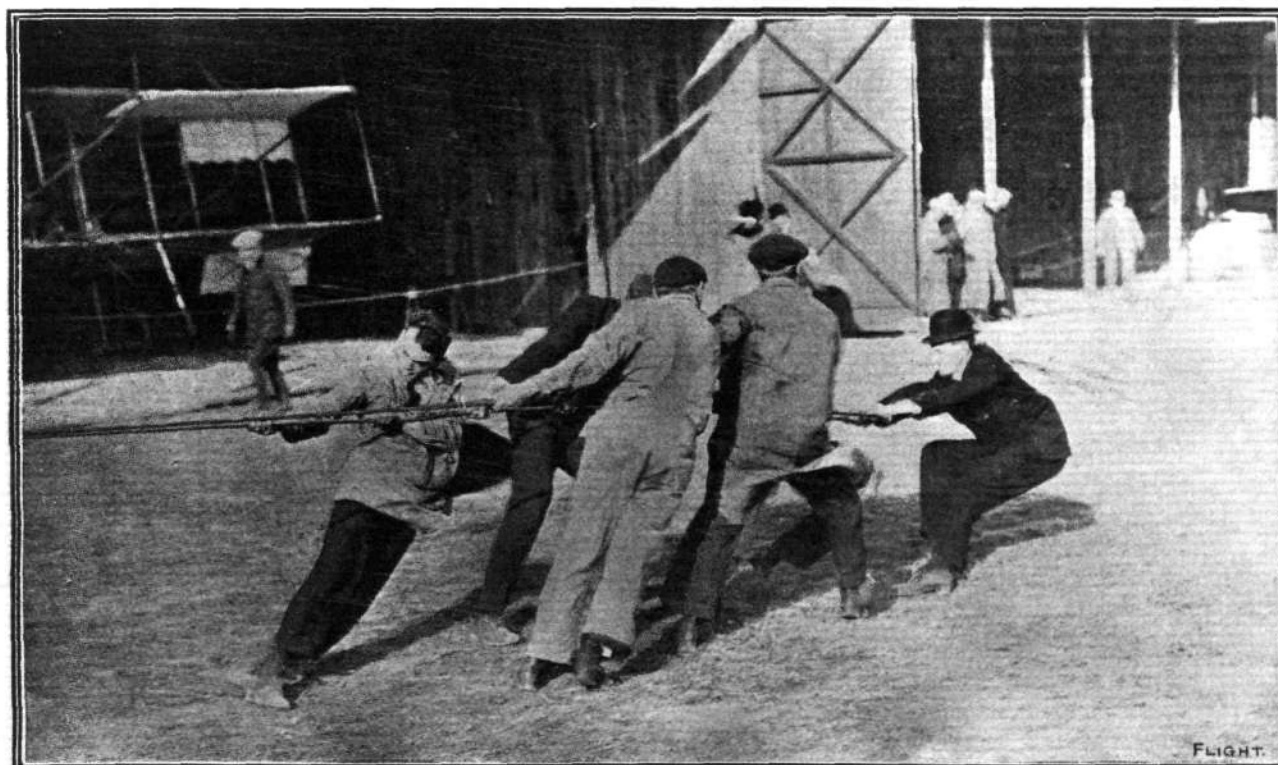
A simple wire strainer made by T. W. Clarke and Co.

and very ingenious. It is merely a small aluminium lever formed by a casting and having two pairs of bosses projecting at one end and an eye-hole provided at the other. The bosses engage with the wire to be strained as shown in the accompanying sketch, which also illustrates how the lever is fastened by a piece of wire attached to



The Gratz wire strainer.

carried in a steel frame. A hole is drilled through the pulley and the wire to be tightened is threaded through the frame and the pulley as shown in the sketch. The pulley is then tightened by a handle and the pulley is locked in position by means of a nut.



HOLDING BACK A 100-H.P. BLÉRIOT MONOPLANE.—An "incident" in the successful attempt by Mr. Claude Grahame-White at Belmont Park Meeting, U.S.A., last year, to secure for Great Britain the Gordon-Bennett International Trophy.

CORRESPONDENCE.

*. The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

Correspondents communicating with regard to letters which they have read in **FLIGHT**, would much facilitate ready reference by quoting the number of each such letter.

The Deperdussin Design.

[1324] I desire to call your attention to a slight error which has crept into your article on the Deperdussin monoplane. You make a statement to the effect that the new racing machine has a cambered lifting tail, probably to render the machine more lively to the controls. You also state that the lifting plane contributes to a certain extent to the efficiency of the machine by actually doing work instead of being a solely directive organ. As for the latter statement it is plain that a certain area of lifting surface with a given angle of incidence is required to lift a certain machine at a given speed. It remains to be proved whether it be best for the front plane to lift the entire weight, or whether the tail should be made to do a portion of the work. I speak from the point of lifting efficiency only. As to your statement that a lifting tail probably renders the machine more lively to the controls, I think, if you were to ask Pixton his opinion on this matter, or Graham Gilmour, or anybody else who has flown the two types of machine, that you would find practical aviators entirely disagree with you. I know for a fact that when Pixton was first trying the new Avro with floating empenage, he on several occasions nearly fell on account of the fact that he found the machine far more sensitive to the control than the old lifting tail type of machine that he had been accustomed to fly.

The floating tail aeroplane with C.G. in line with C.P. of main plane, and with centre of thrust bisecting them both, is the only correctly-designed machine, and if a designer plans a flyer in any other way he is simply departing from the recognised correct lines for the sake of experimenting on his own. In the ordinary course of things he is bound eventually to gradually modify his design until he gets the various components of gravity, pressure, and thrust, in the position that study and experience has taught us is correct.

Chiswick.

ERNEST WARDE-FOX.

The Late Maurice Petit Pierre: a Tribute.

[1325] With the death of Maurice Petit Pierre, manager of their school at Hendon, the Blériot Co. lose a man of more than ordinary merit. Like many others engaged in aviation, he was an engineer by profession, having obtained his degree at the École Centrale Lyonnaise.

Unfortunately he was modest and unassuming to a fault, with the result that his efforts often passed unobserved by those who could have shown their appreciation in a material way. To give instruction in flying is a thankless task at the best of times, and there are very few men who are qualified for such a responsible position.

Mr. Petit Pierre was a man in a thousand; he had the interest of the school always at heart, and was an indefatigable worker on behalf of the pupils.

All of those with whom he came in contact admired and respected him; besides, his good nature and genial manner endeared him to everyone. The loss of such a man is indeed to be deplored.

Courcy, Marne.

G. M. DYOTT.

Flying in Canada.

[1326] I am sending you herewith photographs of the first aeroplane flights in Saskatchewan. These were made this week by "Bob" St. Henry on a Curtiss biplane at the Dominion Exhibition, which is being held in Regina this year. He gave exhibition flights on five evenings; these mostly consisted of circular flights in front of the grand stand. On one of his flights he went from the Exhibition grounds to the Parliament Buildings, where he circled the dome at a height of 250 ft., and then returned to the grounds again—the whole trip being about four miles.

He was most successful throughout, and was, without doubt, the star attraction of the Exhibition.

Regina, Saskatchewan, Canada.

CARL P. RICHARDS.

Aerofoil Shapes.

[1327] I have been reading recently in **FLIGHT** that interesting series of articles by Mr. Mervyn O'Gorman on "Problems Relating to Aircraft."

In connection with the aerofoil shapes (Sections 47-56) I should like to ask the writer, through you, what are the positions of co-ordinate axes relative to the "planes" for the equations given (Sections 53-55), and if the given values of the constants refer to the actual size of the planes, or to the same reduced to any other scale?

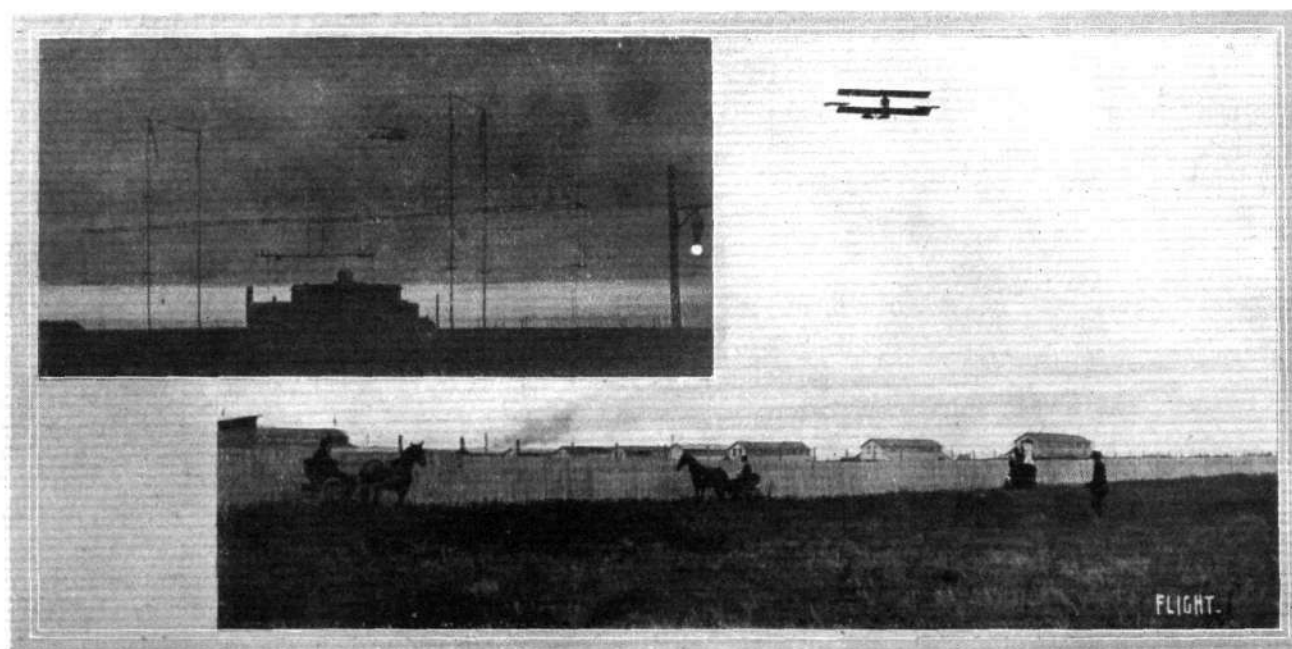
Thanks to **FLIGHT** I am now making steady progress in the study of this fascinating science.

Sheffield.

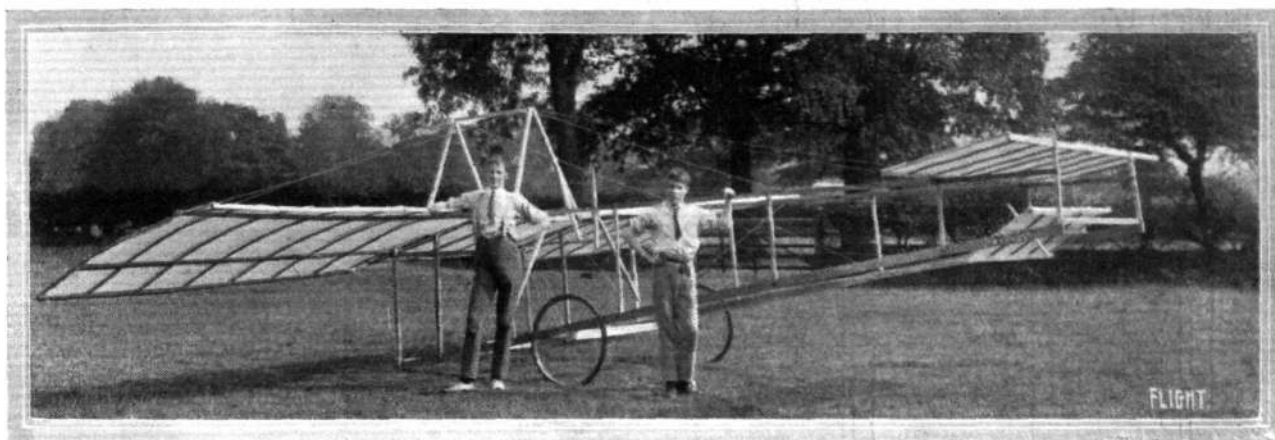
"STUDENT."

Hollow Spars and Wire Strainers.

[1328] Referring to letter 1308, **FLIGHT**, August 19th, re hollow spars for aeroplanes, I have used these and find they lend themselves exceedingly well to monoplane construction, as they are very rigid in the short lengths, such as engine supports, &c., and yet have plenty of natural spring in the long lengths. I find that by their use a very great deal of wire bracing, &c., can be eliminated. Those I used were made in halves, however, and had one defect, they were liable to split if exposed in a strong sun, and I therefore discarded them in favour of bamboo, which is hardly as strong, weight for weight, but stands rough usage, and is much cheaper to replace. I am of opinion that a well-made hollow spar, of the right wood and preferably laminated in places with strong waxed twine, would be a most useful adjunct to the aeroplane con-



Mr. St. Henry flying on a Curtiss biplane at the Dominion Exhibition in Regina, Canada.



Man-carrying glider constructed by Masters Pickering and Willoughby.

structor, and personally I should be very pleased to receive particulars of same.

If spars of stream-line form could be made by this process, without the necessity of making them in halves, they should be most useful, if of uniform quality. Referring to the wire strainer, which I notice illustrated in "Models," of same issue, I used this mode of tightening wires in the summer of 1909, on a full-sized machine, and whilst it certainly answers its purpose, it requires to be most carefully used, as an enormous leverage can be obtained; in fact, we often strained 10 and 12 gauge high-tensile steel wires to breaking point by this means, so that with the light wires used in model work it would require very delicate handling. We drilled holes round the periphery of the ratchet, and tightened up by means of a short "tommy bar" when extra tension was required. Also the teeth require to be well undercut, or the wires may spring out under a sudden shock, such as may be had when landing.

Coventry.

WILLIAM A. WEAVER.

A Valkyrie Type Glider.

[1329] The enclosed photograph represents the unaided work of my son and his friend, aged 16 and 15 respectively. They take more than a keen interest in aviation, and have during their holidays the last year or so built successful models of most of the various types of biplanes and monoplanes. They have now tried something on a larger scale, viz., a glider, obtaining their idea from your scale drawing of a Valkyrie monoplane, on page 273 of your issue of April 1st, 1911. The dimensions of the glider are—span of plane 26 ft., length 20 ft., breadth of body 6 ft. The planes are covered with strong proofed and sized cloth. The machine is substantially built, easily assembled, convenient to transport, and only cost, for the raw material, about 25s. The builders, Charles Leigh Pickering and Norman Dean Willoughby, are now waiting for a suitable breeze and at least a "flight." The machine took about a fortnight to build.

Knutsford.

ROBERT L. PICKERING.

London Aerodrome Limited.

[1330] With reference to the notice appearing in your last issue of the appointment of myself as voluntary liquidator of this Company, I beg to state, in order that there should not be the slightest misunderstanding, that the only reason for such appointment is the sale of the Company's whole undertaking to Mr. Claude Grahame-White, who, I understand, has now disposed of the same to the Grahame-White Aviation Company, Limited, which Company will continue the business at Hendon as heretofore.

London, E.C.

WALTER A. PEARCE.

The Twisting Tail.

[1331] My attention has been called to letters that are frequently appearing in your excellent paper bearing on the subject of a twisting tail. This definition does not give much of an explanation of what the writers mean.

For some years past I have experimented with model gliders of the monoplane type, some having lifting tails and others the reverse, each model having some form of twisting tail. It is possible, and decidedly more natural, in the opinion of the writer, to control horizontal or even vertical direction by means of a tail such as I have used and the design of which is protected.

It has not been my privilege to see much flying, but the action of the vertical rudder as used in most, if not all, aeroplanes is not "natural." Supposing the rudder is ported, the area of that member sets up a resistance upon the port side of the centre of pressure, and by so doing retards the after portion of the machine (in the case of

a monoplane), thereby causing it to "hang"; at least, this is my experience with models.

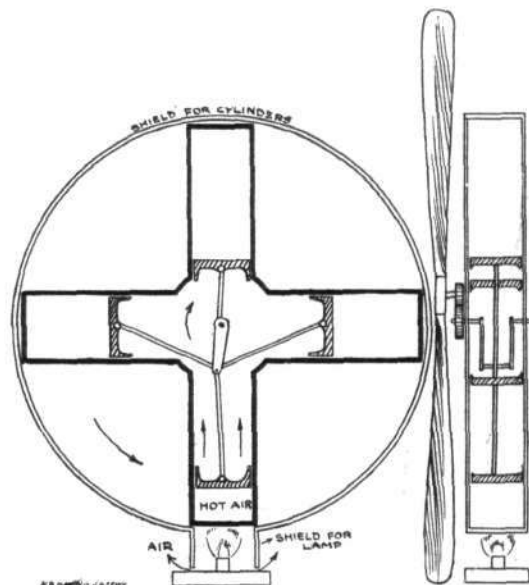
As it would not be beneficial for any other persons to apply for a patent in connection with the same principle or the application of that principle, and would also mean unnecessary expense for me, perhaps some of your correspondents will at least give an outline of their experience.

ROJ. F. RICHARDS.

MODELS.

Hot Air Engine.

[1332] Perhaps some of your readers with experience would criticise this drawing of a 4-cylinder rotary hot air engine that we are thinking of making. The cylinders rotate in the opposite

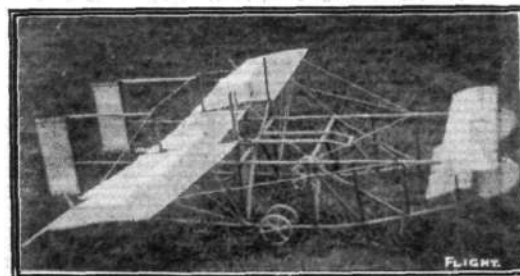


direction to the propeller by means of two gear wheels. It is to be made of aluminium throughout. The lamp to be methylated spirit. Would this drive a 10-in. propeller?

Tonbridge.

H. B. M. and J. G. F.

[1333] I have pleasure in enclosing photo of my one-eighth scale



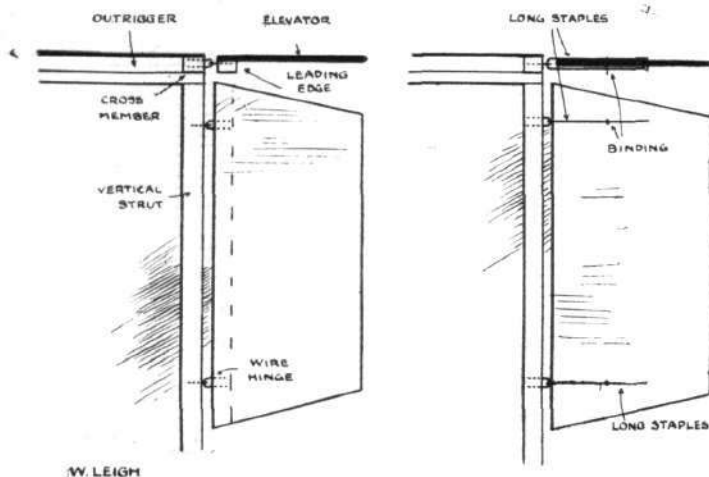
model Valkyrie Type "A," on which I should be pleased to receive the criticism of your readers.

Shoeburyness.

W. BACON.

Rudder Mounting.

[1334] Replying to E. Caslon, *re* the fixing of rudders, the enclosed sketch illustrates two useful methods. Piano wire staples



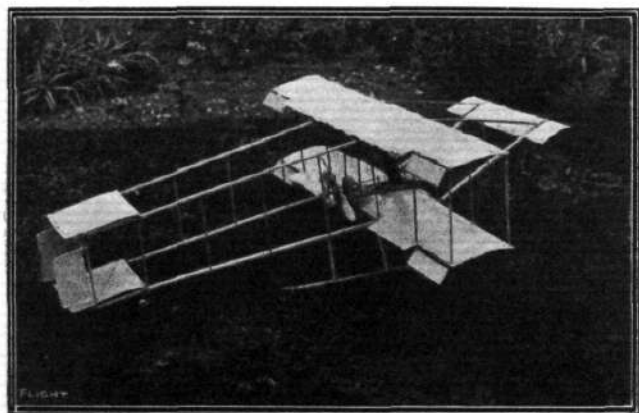
serve for the hinges. When the planes are less than $\frac{1}{8}$ in. thick it is advisable to use long staples, as shown in the right-hand sketch. These staples clamp the plane, and one end is threaded through so as to complete the fastening.

Worsley.

W. LEIGH.

Model Construction.

[1335] The photograph that I send you of a model Farman is interesting on account of the dummy Gnome engine with which the



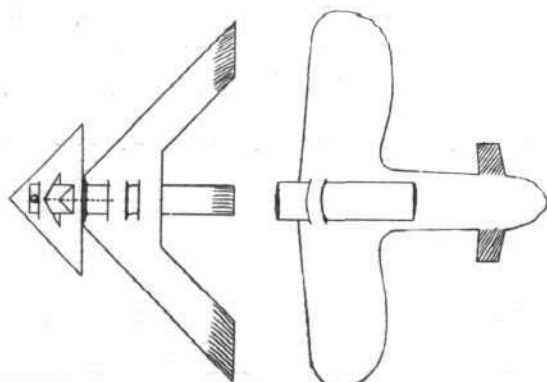
model is equipped. The loading of this model is 5 ozs. to the square foot, but I have had success with other models loaded as heavily as this before.

Salisbury.

S. J. ROBINSON.

Paper Models.

[1336] I enclose sketches of two models made by my brother and myself which may perhaps interest other readers of FLIGHT.

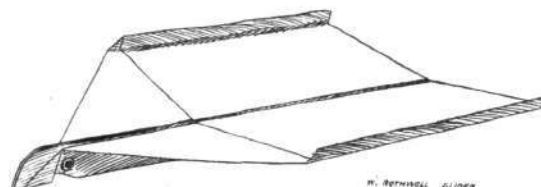


Both will fly well, that shown on the left illustrates the V plan form principle, that on the right is roughly a Blériot. The first mentioned should have the tips of the back wings slightly raised before launching.

G. CORBETT.

[1337] On looking through your valuable journal a week or two back, I was particularly pleased to find a page devoted solely to paper models. As I am very interested in this branch I constructed a number of the models illustrated with a good deal of success.

I enclose you herewith a model of my own design. It will glide very steadily when projected swiftly through the air. It can be launched

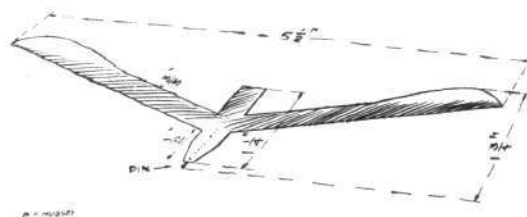


by hand, but I have constructed a small catapult arrangement (herewith) which is far more efficient. When projected vertically, it will right itself and glide down in beautiful circles, provided the weight is properly adjusted. When shot horizontally it will skim the ground for a good distance before coming to earth. The model will glide to advantage with a very small dihedral angle given to the planes. See sketch as to best angle.

Holywell.

WILFRED ROTHWELL.

[1338] I enclose a design for a "Dunne" type of paper glider that I have found very stable in flying. It is launched by holding



the tail and throwing gently forward from the hand parallel with the ground. It has made glides of from 20 to 30 feet indoors.

Bryanston Square.

B. F. HUSSEY.

Aeronautical Patents Published.

Applied for in 1910.

Published August 31st, 1911.

- 13,484. J. ZEITLIN. Flying machines.
- 22,035. A. BEURRIER. Propelling aerial machines.
- 26,960. E. W. WELSH. Flying machines.

Applied for in 1911.

Published August 31st, 1911.

- 3,882. G. MEES. Automatic stabilisation of flying machines.
- 9,128. E. MAGLIONE. Multi-cellular aeroplane with automatic stability apparatus.

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